Elenco delle 12 pubblicazioni e tesi di laurea Ing. Graziana Cavone

ELENCO DELLE PUBBLICAZIONI:

1. Scarabaggio, P., Carli, R., Cavone, G., Epicoco, N., & Dotoli, M. (2021). Nonpharmaceutical Stochastic Optimal Control Strategies to Mitigate the COVID-19 Spread. IEEE Transactions on Automation Science and Engineering, in press.
2. Cavone, G., van den Boom, T., Blenkers, L., Dotoli, M., Seatzu, C., & De Schutter, B. (2020). An MPC-Based Rescheduling Algorithm for Disruptions and Disturbances in Large-Scale Railway Networks. IEEE Transactions on Automation Science and Engineering, doi: 10.1109/TASE.2020.3040940.
3. Carli, R., Cavone, G., Epicoco, N., Scarabaggio, P., & Dotoli, M. (2020). Model predictive control to mitigate the COVID-19 outbreak in a multi-region scenario. Annual Reviews in Control, vol. 50, pp. 373-393, ISSN 1367-5788.
4. Scarabaggio, P., Carli, R., Cavone, G., & Dotoli, M. (2020). Smart Control Strategies for Primary Frequency Regulation through Electric Vehicles: A Battery Degradation Perspective. Energies, 13(17), 4586.
5. Hosseini, S. M., Carli, R., Cavone, G., & Dotoli, M. (2020). Distributed control of electric vehicle fleets considering grid congestion and battery degradation. Internet Technology Letters, 3(3), e161.
6. Cavone, G., Dotoli, M., Epicoco, N., Morelli, D., & Seatzu, C. (2020). Design of Modern Supply Chain Networks Using Fuzzy Bargaining Game and Data Envelopment Analysis. IEEE Transactions on Automation Science and Engineering.
7. Carli, R., Cavone, G., Ben Othman, S., & Dotoli, M. (2020). IoT Based Architecture for Model Predictive Control of HVAC Systems in Smart Buildings. Sensors, 20(3), 781.
8. G. Cavone, M. Dotoli, C. Seatzu A Survey on Petri Net Models for Freight Logistics and Transportation Systems, IEEE Transactions on Intelligent Transportation Systems, vol. 19, no. 6, pp. 1795-1813, June 2018.
9. Cavone, G., Dotoli, M., Epicoco, N., Seatzu, C., Intermodal Terminal Planning by Petri Nets and Data Envelopment Analysis, Control Engineering Practice, Elsevier, vol. 69, pp. 9-22, 2017.
10. Cavone, G.; Dotoli, M., Epicoco, N., Seatzu, C., A decision making procedure for robust train rescheduling based on mixed integer linear programming and Data Envelopment Analysis, Applied Mathematical Modelling, vol. 52, pp. 255-273, Dec., 2017.
11. Dotoli, M., Epicoco, N., Falagario, M., Cavone, G., A Timed Petri Nets Model for Performance Evaluation of Intermodal Freight Transport Terminals, in IEEE Transactions on Automation Science and Engineering, vol. 13, no. 2, pp. 842-857, April 2016.
12. Cavone, G., Dotoli, M., Seatzu, C., Management of Intermodal Freight Terminals by First Order Hybrid Petri Nets, in IEEE Robotics and Automation Letters, issue 1, vol 1, pp 2-9, January 2016.

TESI DI DOTTORATO:

1. Cavone Graziana, "Advanced Modeling and Control of Intermodal Terminals and Railway Networks", a.a. 2017/2018, Dottorato in Ingegneria Elettronica e Informatica, Università degli Studi di Cagliari.

Publicazioni presentate – Marco Cognetti

Pubblicazioni

1) M. Selvaggio, M. Cognetti, S. Nikolaidis, S. Ivaldi and B. Siciliano, "Autonomy in Physical Human-Robot Interaction: A Brief Survey," inIEEE Robotics and Automation Letters, vol. 6, no. 4, pp. 7989-7996, and and 2021 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, 2021.

2) M. Cognetti, M. Aggravi, C. Pacchierotti, P. Salaris, P. Robuffo Giordano. *Perception-Aware Human-Assisted Navigation of Mobile Robots on Persistent Trajectories*. IEEE IEEE Robotics and Automation Letters, vol. 5, no. 3, 2020. and 2020 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, 2020

3) P. Salaris, M. Cognetti, R. Spica, P. Robuffo Giordano. *Online Optimal Perception-Aware Trajectory Generation*. IEEE Transactions on Robotics, vol. 35, no. 6, 2019.

4) C. Gaz, M. Cognetti, A. Oliva, P. Robuffo Giordano, A. De Luca, *Dynamic Identification of the Franka Emika Panda Robot With Retrieval of Feasible Parameters Using Penalty-Based Optimization*. IEEE Robotics and Automation Letters, vol. 4, no. 4, 2019 and 2019 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Macau, China, Nov. 2019.

5) P. Stegagno, M. Cognetti, G. Oriolo, H. H. Bülthoff, A. Franchi. *Ground and aerial mutual localization using anonymous relative-bearing measurements*. IEEE Transactions on Robotics, vol. 32, no. 5, 2016.

6) M. Cognetti, P. Salaris, P. Robuffo Giordano. *Optimal Active Sensing with Process and Measurement Noise*. *2018 IEEE Int. Conf. on Robotics and Automation* (ICRA'18), Brisbane, Australia, May 2018

7) M. Cognetti, D. De Simone, F. Patota, N. Scianca, L. Lanari, G. Oriolo. *Real-Time Pursuit-Evasion with Humanoid Robots*. *2017 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Singapore, Singapore, May 2017

8) J. King, M. Cognetti, S. Srinivasa. *Rearrangement planning using object-centric and robot-centric action spaces*. *2016 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Stockholm, Sweden, May 2016

9) M. Cognetti, D. De Simone, L. Lanari, G. Oriolo. *Real-Time Planning and Execution of Evasive Motions for a Humanoid Robot*. *2016 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Stockholm, Sweden, May 2016

10) M. Cognetti, P. Mohammadi, G. Oriolo. *Whole-Body Motion Planning for Humanoids based on CoM Movement Primitives*. *15th IEEE-RAS Int. Conf. on Humanoid Robots* (ICHR'15), Seoul, Korea, Nov. 2015

11) M. Cognetti, G. Oriolo, P. Peliti, L. Rosa, P. Stegagno. *Cooperative Control of a Heterogeneous Multi-Robot System based on Relative Localization*. *2014 IEEE/RSJ Int. Conf. on Intelligent Robots & Systems* (IROS'14), Chicago, Illinois, USA, Sept. 2014

12) P. Stegagno, M. Cognetti, L. Rosa, P. Peliti, G. Oriolo. *Relative Localization and Identification in a Heterogeneous Multi-Robot System*. *2013 IEEE Int. Conf. on Robotics and Automation* (ICRA'13), Karlsruhe, Germany, May 2013

Tesi di dottorato – Marco Cognetti

1) M. Cognetti. *Motion planning for manipulation and/or navigation tasks with emphasis on humanoid robots*. Sapienza - University of Rome, 2016.

Pubblicazioni allegate alla domanda

- Journal papers
  - J1. M. Ferro, C. Gaz, M. Anzidei, M. Vendittelli, “Online needle-tissue interaction model identification for force feedback enhancement in robot-assisted interventional procedures,” *IEEE Transactions on Medical Robotics and Bionics*, 2021.
  - J2. C. Gaz, M. Cognetti, A. Oliva, P. Robuffo Giordano and A. De Luca, “Dynamic Identification of the Franka Emika Panda Robot With Retrieval of Feasible Parameters Using Penalty-Based Optimization,” *IEEE Robotics and Automation Letters*, vol. 4, no. 4, pp. 4147-4154, Oct. 2019.
  - J3. A. De Gaetano, C. Gaz, S. Panunzi, “Consistency of compact and extended models of glucose-insulin homeostasis: The role of variable pancreatic reserve,” *PLOS ONE* 14(2), 2019.
  - J4. C. Gaz, E. Magrini, A. De Luca, “A model-based residual approach for human-robot collaboration during manual polishing operations,” *Mechatronics*, 55, pp. 234-247. 2018.
  - J5. C. Gaz, A. De Gaetano, C. Manes, P. Palumbo, A. Borri, S. Panunzi, “Effective control of glycemia using a simple discrete-delay model,” *IFAC PapersOnLine*, 50(1), pp 13526-13531, 2017.
  - J6. A. De Gaetano, C. Gaz, P. Palumbo, S. Panunzi, “A unifying organ model of pancreatic insulin secretion,” *PLOS ONE*, 10(11). 2015.
- Conference papers
  - C1. C. Gaz, A. Cristofaro, A. De Luca, “Detection and isolation of actuator faults and collisions for a flexible robot arm,” in Proc. of the *IEEE International Conference on Decision and Control* (CDC), 2020.
  - C2. N. Cacciotti, A. Cifonelli, C. Gaz, V. Paduano, AV. Russo, M. Vendittelli, “Enhancing force feedback in teleoperated needle insertion through on-line identification of the needle-tissue interaction parameters,” in Proc. *IEEE RAS and EMBS International Conference on Biomedical Robotics and Biomechatronics*, 2018.
  - C3. C. Gaz, A. De Luca, “Payload estimation based on identified coefficients of robot dynamics – with an application to collision detection,” in Proc. *IEEE Conference on Intelligent Robots and Systems*, 2017.
  - C4. C. Gaz, F. Flacco, A. De Luca, “Extracting feasible robot parameters from dynamic coefficients using nonlinear optimization methods”. Proc. IEEE International Conference on Robotics and Automation, 2016.
  - C5. C. Gaz, F. Flacco, A. De Luca, “Identifying the dynamic model used by the KUKA-LWR: a reverse engineering approach,” in Proc. *IEEE Conference on Robotics and Automation*, 2014.
  - C6. A. De Gaetano, C. Gaz, C. Gori Giorgi, P. Palumbo, “An islet population model of pancreatic insulin production,” in *Proc. IEEE Conference on Decision and Control*, 2013.
- PhD thesis: C. Gaz, “On Dynamic Identification and Control Issues for the KUKA LWR Robot”, Sapienza Università di Roma, 2016.

Roma, 23/10/2021 Claudio Roberto Gaz

Lista delle pubblicazioni presentate

a) *Learning soft task priorities for control of redundant robot*s, V. Modugno, G. Neumann, E. Rueckert, G. Oriolo, J. Peters, S. Ivaldi, ICRA 2016

b) *Robust Real-time Whole-Body Motion Retargeting from Human to Humanoid*, L. Penco, B. Clement, V. Modugno, E. Mingo Hoffman, G. Nava, D. Pucci, Nikos G. Tsagarakis, J.-B. Mouret, S. Ivaldi, HUMANOIDS 2018

c) *A Multimode Teleoperation Framework for Humanoid Loco-Manipulation:A Demonstration Using the iCub Robot*, L. Penco, N. Scianca, V. Modugno, L. Lanari, G. Oriolo, S. Ivaldi, RAM 2019

d) *Learning Soft Task Priorities for Safe Control of Humanoid Robots with Constrained Stochastic Optimization,* V. Modugno, U. Chervet, G. Oriolo, S. Ivaldi, HUMANOIDS 2016

e) *Learning robust task priorities of QP-based whole-body torque-controllers,* Marie Charbonneau, Valerio Modugno, Francesco Nori, Giuseppe Oriolo, Daniele Pucci, Serena Ivaldi, HUMANOIDS 2018

f) *Gait Generation using Intrinsically Stable MPC in the Presence of Persistent Disturbances*, F. M. Smaldone, N. Scianca, V. Modugno, L. Lanari, G. Oriolo, HUMANOIDS 2019

g) *Learning Robust Task Priorities and Gains for Control of Redundant Robots*, L. Penco, E. Mingo Hoffman, V. Modugno, W. Gomes, J.B. Mouret, S. Ivaldi, RAL 2020

h) *One-Shot Evaluation of the Control Interface of a Robotic Arm by Non-experts In book Social Robotics,* S. Marichal A. Malaisé , V. Modugno , O. Dermy , F. Charpillet , S. Ivaldi, Social Robotics 2016

i) *Model Predictive Control for a Tendon-Driven Surgical Robot with Safety Constraints in Kinematics and Dynamics*, F. Cursi, V. Modugno, P. Kormushev, IROS 2020

j) *An Online Learning Procedure for Feedback Linearization Control without Torque Measurements*, M. Capotondi, G. Turrisi, C. Gaz, V. Modugno, G. Oriolo, A. De Luca, CORL 2019

k) *Bayesian neural network modeling and hierarchical mpc for a tendon-driven surgical robot with uncertainty minimization*, F Cursi, V Modugno, L Lanari, G Oriolo, P Kormushev, RAL 2021

l) *Enforcing Constraints over Learned Policies via Nonlinear MPC: Application to the Pendubot*, G. Turrisi, B. Barros Carlos, M. Cefalo, V. Modugno, L. Lanari, G. Oriolo, IFAC 2020

m) *Tesi di dottorato: Learning Safe Controllers for Motion Generation in Redundant Robots, V. Modugno, Sapienza università di Roma, 2017*

Publication List

** Authors equal contribution*

Journal Papers

6. Zhou Y.M., Hohimer C., **Proietti T.**, O'Neill C., Walsh C. (2021) Kinematics-based control of an inflatable soft wearable robot for assisting the shoulder of industrial workers, *IEEE Robotics and Automation Letters*, vol. 6:2, pp. 2155-2162.
5. **Proietti T.***, O'Neill C.*, Hohimer C., Nuckols K., Clarke M., Zhou Y.M., Lin D., Walsh C. (2021) Sensing and control of a multi-joint soft wearable robot for upper-limb assistance and rehabilitation, *IEEE Robotics and Automation Letters*, vol. 6:2, pp. 2381-2388.
4. O'Neill C.*, **Proietti T.***, Nuckols K., Clarke M., Hohimer C., Cloutier A., Lin D., Walsh C. (2020) Inflatable soft wearable robot for reducing therapist fatigue during upper extremity rehabilitation in severe stroke, *IEEE Robotics and Automation Letters*, vol. 5:3, pp. 3899 - 3906.
3. **Proietti T.**, Guigon E., Roby-Brami A., and Jarrassé N. (2017) Modifying upper-limb inter-joint coordination in healthy subjects by training with a robotic exoskeleton, *Journal of NeuroEngineering and Rehabilitation*, vol. 14. pp. 55.
2. **Proietti T.**, Crocher V., Roby-Brami A., and Jarrassé N. (2016) Upper-limb robotic exoskeletons for neurorehabilitation: a review on control strategies, *IEEE Reviews in Biomedical Engineering*, vol. 9, pp. 4-14.
1. Jarrassé N., **Proietti T.**, Crocher V., Robertson J., Sahbani A., Morel G. and Roby-Brami A. (2014) Robotic exoskeletons: a perspective for the rehabilitation of arm coordination in stroke patients, *Frontiers in Human Neuroscience*, vol. 8:947, pp. 1-10.

Conference Papers

4. **Proietti T.**, Parry R., Lejeune F., Roby-Brami A., and Jarrassé N. (2018) Adaptation of upper limb movement using exoskeleton-based training and transfer of cinematic patterns to unconstrained movement: A preliminary study, *Annals of Physical and Rehabilitation Medicine*, vol. 61, pp 488, 12th World Congress of the International Society of Physical and Rehabilitation Medicine (Paris, France).
3. **Proietti T.**, Roby-Brami A., and Jarrassé N. (2017) Comparison of different error signals driving the adaptation in assist-as-needed controllers for neurorehabilitation with an upper-limb robotic exoskeleton, *IEEE International Conference on Robotics and Automation* (ICRA17, Singapore), pp. 6645-6650.
2. **Proietti T.**, Roby-Brami A., Jarrassé N. (2016) Learning motor coordination under resistive viscous force fields at the joint level with an upper-limb robotic exoskeleton, *3rd International Conference on NeuroRehabilitation* (ICNR16, Segovia, Spain), in Converging Clinical and Engineering Research on Neurorehabilitation II, pp. 1175-1179, Springer International Publishing.
1. **Proietti T.**, Jarrassé N., Roby-Brami A., and Morel G. (2015) Adaptive control of a robotic exoskeleton for neurorehabilitation, *7th International IEEE/EMBS Conference on Neural Engineering* (NER15, Montpellier, France), pp. 803-806.

Thesis

1. Proietti T. (2017) Characterizing the reciprocal adaptation in physical human-robot interaction to address the inter-joint coordination in neurorehabilitation., Robotics [cs.RO]. Université Pierre et Marie Curie - Paris VI, 2017.

Other Documents

6. Postdoc work contract 2019-20
5. Postdoc work contract 2020-21
4. Postdoc work contract 2021-22
3. Proces Verbal et Rapport de Soutenance de These *(official Ph.D. thesis report from thesis committee)*
2. Harvard University FAS Undergraduate Mentoring Workshop certificate.
1. Letter from Northwestern University PI confirming period of Visiting Research Fellow.

Tesi di dottorato:

Mutual localization from anonymous measurements in multirobot systems, P. Stegagno, Università di Roma La Sapienza

Pubblicazioni

1) C. Masone, P. Stegagno, *Shared Control of an Aerial Cooperative Transportation System with a Cable-suspended Payload*, Journal of Intelligent & Robotic Systems, 103, 40 (2021), Oct 2021. https://doi.org/10.1007/s10846-021-01457-4
2) C. Yuan, P. Stegagno, H. He, W. Ren, *Cooperative adaptive containment control with parameter convergence via cooperative finite-time excitation*, IEEE Transactions on Automatic Control, Feb. 2021. https://doi.org/10.1109/TAC.2021.3056336
3) J. Zhang, C. Yuan, W. Zeng, P. Stegagno, C. Wang, *Fault detection of a class of nonlinear uncertain parabolic PDE systems*, IEEE Control Systems Letter, vol. 5, no. 4, pp. 1459-1464, Oct. 2021. https://doi.org/10.1109/LCSYS.2020.3040132
4) J. Zhang, C. Yuan, P. Stegagno, H. He, C. Wang, *Small fault detection of discrete-time nonlinear uncertain systems*, IEEE Transactions on Cybernetics, 51 (2), 2021, pp. 750-764. https://doi.org/10.1109/TCYB.2019.2945629
5) J. Zhang, C. Yuan, C. Wang, P. Stegagno, W. Zeng, *Composite adaptive NN learning and control for discrete-time nonlinear uncertain systems in normal form*, Neurocomputing, 390, 2020, pp. 168–184. https://doi.org/10.1016/j.neucom.2020.01.052
6) J. Zhang, C. Yuan, P. Stegagno, W. Zeng, C. Wang, *Small fault detection from discrete-time closed-loop control using fault dynamics residuals*, Neurocomputing, Jul. 2019. https://doi.org/10.1016/j.neucom.2019.07.037
7) X. Dong, C. Yuan, P. Stegagno, W. Zeng, C. Wang, *Composite cooperative synchronization and decentralized learning of multi-robot manipulators with heterogeneous nonlinear uncertain dynamics*, Journal of The Franklin Institute, 356(10), 5049-5072, July 2019. https://doi.org/10.1016/j.jfranklin.2019.04.028
8) P. Stegagno, C. Yuan, *Distributed cooperative adaptive state estimation and system identification for multi-agent systems*, IET Control Theory & Applications, Feb. 2019. https://doi.org/10.1049/iet-cta.2018.6113
9) S. Rajappa, H. H. Bülthoff and P. Stegagno, *Design and Implementation of a Novel Architecture for Human-UAV Physical Interaction*, International Journal of Robotics Research, vol. 36, issue 5-7, pp. 800-819, May 2017. https://doi.org/10.1177/0278364917708038
10) P. Stegagno, M. Cognetti, G. Oriolo, H. H. Bülthoff and A. Franchi, *Ground and Aerial Mutual Localization using Anonymous Relative-Bearing Measurements*, IEEE Transactions on Robotics, vol. 32, no. 5, pp. 1133-1151, Oct. 2016. https://doi.org/10.1109/TRO.2016.2593454
11) A. Franchi, P. Stegagno and G. Oriolo, *Decentralized Multi-Robot Encirclement of a 3D Target with Guaranteed Collision Avoidance*, Autonomous Robots, July 2015. . https://doi.org/10.1007/s10514-015-9450-3
12) A. Franchi, G. Oriolo and P. Stegagno, *Mutual Localization in Multi-Robot Systems using Ano-nymous Relative Measurements*, International Journal of Robotics Research, vol. 32, issue 11, pp. 1303-1322, Sept 2013. https://doi.org/10.1177/0278364913495425

ELENCO DEGLI ALLEGATI ALLA DOMANDA

Pubblicazioni:

9. Valeria Villani, Lorenzo Sabattini, Giorgia Zanelli, Enrico Callegati, Benjamin Bezzi, Paulina Baranska, Zofia Mockałło, Dorota Zołnierczyk-Zreda, Julia N. Czerniak, Verena Nitsch, Alexander Mertens, and Cesare Fantuzzi. A user study for the evaluation of adaptive interaction systems for inclusive industrial workplaces. *IEEE Trans. Automation Science and Engineering*, 2021 [*9_Villani_2021_TASE_auser.pdf*]
10. Elisa Prati, Valeria Villani, Fabio Grandi, Margherita Peruzzini, and Lorenzo Sabattini. Use of interaction design methodologies for human-robot collaboration in industrial scenarios. *IEEE Trans. Automation Science and Engineering*, 2021 [*10_Villani_2021_TASE_use.pdf*]
11. Valeria Villani, Lorenzo Sabattini, Paulina Baranska, Enrico Callegati, Julia N. Czerniak, Adel Debbache, Mina Fahimipirehgalin, Andreas Gallasch, Frieder Loch, Rosario Maida, Alexander Mertens, Zofia Mockałło, Francesco Monica, Verena Nitsch, Engin Talas, Elisabetta Toschi,Birgit Vogel-Heuser, Jeanmarc Willems,Dorota Zołnierczyk-Zreda, and Cesare Fantuzzi. The INCLUSIVE system: A general framework for adaptive industrial automation. *IEEE Trans. Automation Science and Engineering*, 18(4):1969 – 1982, 2021 [*11_Villani_2021_TASE_theinclusive.pdf*]
12. Valeria Villani, Lorenzo Sabattini, Frieder Loch, Birgit Vogel-Heuser, and Cesare Fantuzzi. A general methodology for adapting industrial HMIs to human operators. *IEEE Trans.*

Automation Science and Engineering, 18(1):164 – 175, 2021 [*12_Villani_2021_TASE_ageneral.pdf*]

13. Julia N. Czerniak, Nikolas Schierhorst, Valeria Villani, Lorenzo Sabattini, Christopher Brandl, Alexander Mertens, Maximilian Schwalm, and Verena Nitsch. The index of cognitive activity - eligibility for task-evoked informational strain and robustness towards visual influences. *Applied Ergonomics*, 92:1033–1042, 2021 [*13_Villani_2021_JERG.pdf*]
14. Valeria Villani, Massimiliano Righi, Lorenzo Sabattini, and Cristian Secchi. Wearable devices for the assessment of cognitive effort for human-robot interaction. *IEEE Sensors J.*, 20(21): 13047–13056, 2020 [*14_Villani_2020_JSEN.pdf*]
15. Valeria Villani, Beatrice Capelli, Cristian Secchi, Cesare Fantuzzi, and Lorenzo Sabattini. Humans interacting with multi-robot systems: a natural affect-based approach. *Autonomous Robots*, 44(3):601–616, 2020 [*15_Villani_2020_AURO.pdf*]
16. Valeria Villani, Fabio Pini, Francesco Leali, and Cristian Secchi. Survey on human-robot collaboration in industrial settings: Safety, intuitive interfaces and applications. *Mechatronics*, 55:248–266, 2018 [*16_Villani_2018_MECH_survey.pdf*]
17. Valeria Villani, Lorenzo Sabattini, Julia N. Czerniak, Alexander Mertens, and Cesare Fantuzzi. MATE robots simplifying my work: benefits and socio-ethical implications. *IEEE Robot. Automat. Mag.*, 25(1):37–45, 2018 [*17_Villani_2018_RAM.pdf*]
18. Chiara Talignani Landi, Valeria Villani, Federica Ferraguti, Lorenzo Sabattini, Cristian Secchi, and Cesare Fantuzzi. Relieving operators' workload: Towards affective robotics in industrial scenarios. *Mechatronics*, 54:144–154, Oct. 2018 [*18_Villani_2018_MECH_relieving.pdf*]
19. Valeria Villani, Lorenzo Sabattini, Giuseppe Riggio, Cristian Secchi, Marco Minelli, and Cesare Fantuzzi. A natural infrastructure-less human-robot interaction system. *IEEE Robot. Automat. Lett.*, 2(3):1640–1647, 2017 [*19_Villani_2017_RA-L.pdf*]
20. Antonio Fasano and Valeria Villani. Baseline wander removal for bioelectrical signals by quadratic variation reduction. *Signal Process.*, 99:48–57, 2014 [*20_Villani_2014_Signal_Processing.pdf*]

Reggio Emilia, 28/10/2021

Valeria Villani

Curriculum dell'attività scientifica, didattica e professionale

Dr. Ing. Graziana CAVONE

NOTIZIE RIASSUNTIVE

PROFILO BIOGRAFICO

Nome: Graziana
Cognome: Cavone

POSIZIONE ATTUALE

- Professore a contratto del settore scientifico disciplinare ING-INF/04 Automatica al Politecnico di Bari
- Professore a contratto del settore scientifico disciplinare ING-INF/04 Automatica all'Università degli Studi di Foggia
- Assegnista di Ricerca post-doc del settore scientifico disciplinare ING-INF/04 al Politecnico di Bari - Dipartimento di Ingegneria Elettrica e dell'Informazione - Decision & Control Laboratory - Tutor: Prof. Ing. Mariagrazia Dotoli.

ISTRUZIONE

Da novembre 2014 ad ottobre 2017

Dottorato di Ricerca in Ingegneria Elettronica e Informatica – Settore Automazione – Label Doctor Europaeus

Università degli studi di Cagliari, Piazza d'Armi, Cagliari (CA) – Italia.

Titolo della tesi: "Advanced Modeling and Control of Intermodal Terminals and Railway Networks", votazione: Excellent with honors.

- Ricerca nell'ambito dei trasporti e dell'Information and Communication Technology per lo sviluppo sostenibile dei sistemi di trasporto nell'ambito Smart City. Modellazione, simulazione, ottimizzazione, gestione di sistemi ad eventi discreti. Reti di Petri. Ottimizzazione Vincolata (Mixed Integer Linear Programming). Rescheduling Ferroviario. Gestione di terminal intermodali.

Tutor:

Prof. Carla Seatzu – Professore Associato di Automatica presso il Dipartimento di Ingegneria Elettrica ed Elettronica dell'Università degli Studi di Cagliari

Prof. Mariagrazia Dotoli – Professore Associato di Automatica presso il Dipartimento di Ingegneria Elettrica e dell'Informazione del Politecnico di Bari

Settori: AUTOlab - laboratorio del gruppo di Automatica (ING-INF/04) del Dipartimento di Ingegneria Elettrica ed Elettronica dell'Università degli Studi di Cagliari; D&CLab - laboratorio di Decision & Control del Dipartimento di Ingegneria Elettrica e dell'Informazione del Politecnico di Bari.

Novembre 2020

Abilitazione alla Professione di Ingegnere prima sessione 2020

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

Abilitazione in Ingegneria Industriale sezione A – votazione 66/70.

Aprile 2015

Conseguimento della Certificazione Linguistica: First Certificate in English Livello B2 – Grade A CEFR Level C1

Università degli studi di Bari, Piazza Umberto I, 70121, Bari (BA) – Italia.

- Studio della lingua inglese scritta, letta e parlata. Conseguimento del Certificato di Lingua Inglese livello B2 ed

attestazione di livello C1, riconosciuta dal Cambridge English, con votazione 181.

Dicembre 2013

Diploma di Laurea Specialistica in Ingegneria dell'Automazione (classe 29/S)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

- Titolo della tesi: "Modellazione e simulazione di Terminal di Trasporto Intermodale tramite Reti di Petri Temporizzate", votazione: 110/110 e lode; sedi del tirocinio: Decision & Control Laboratory del Dipartimento di Ingegneria Elettrica e dell'Informazione del Politecnico di Bari; General Transport Service, via Sasha Mucciaccia, 15, Bari - Italia.

Relatore: Prof. Mariagrazia Dotoli; Co-relatore: Ing. Nicola Epicoco.

Ottobre 2009

Diploma di Laurea Triennale in Ingegneria dell'Automazione

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

- Titolo della tesi: "Progetto di regolatori PI con integratore frazionario", votazione: 100/110; sede del tirocinio: laboratorio di Robotica del Dipartimento di Ingegneria Elettrica e dell'Informazione del Politecnico di Bari.

Relatore: Prof. Bruno Maione; Co-relatore: Ing. Paolo Lino.

Giugno 2003

Diploma di Maturità Linguistica

Istituto Tecnico Commerciale "Giulio Cesare", Bari (BA) – Italia.

- Diploma conseguito con la votazione di 100/100 nell'a.s. 2002/2003.
- Conoscenza approfondita di lingua inglese, tedesca e francese.

Anno 2001

Conseguimento della Certificazione Linguistica: Zertifikat Deutsch (livello B1)

Goethe Institut, Bari (BA) – Italia.

- Studio della lingua tedesca scritta, letta e parlata. Conseguimento del Certificato di Lingua Tedesca, riconosciuta dal Goethe Institut, con votazione 274/300.

COMPETENZE LINGUISTICHE

Lingua madre: Italiano

Altre lingue	COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	178	190	185	178	172
	First Certificate in English - Livello B2 – Grada A CEFR Livello C1				
Tedesco	Molto Buono	Molto Buono	Molto Buono	Molto Buono	Molto Buono
	Zertifikat Deutch (Livello B1) – votazione 274/300				
Francese	Buono	Buono	Buono	Buono	Buono

CAPACITÁ E COMPETENZE PERSONALI

Organizzative

Buona competenza nel project management (acquisita in ambito lavorativo).

Tecniche

Ottima competenza nella definizione ed implementazione di modelli di ottimizzazione (acquisita in ambito lavorativo)

- Matlab, CPLEX, GUROBI.

Eccellente competenza di tecniche di modellazione e simulazione di sistemi complessi (acquisita in ambito lavorativo).

Ottima competenza nelle tecniche di controllo predittivo model based (acquisita in ambito lavorativo).

Informatiche

Buona competenza di Model Based Engineering (acquisita mediante esperienza lavorativa).

Eccellente padronanza delle principali applicazioni general-purpose, acquisita mediante esperienze lavorative e mediante auto-apprendimento.

Conoscenza dei seguenti linguaggi di programmazione (principalmente acquisita mediante esperienze lavorative):

- Visual C, C++, Ladder Diagram.

Buona conoscenza con i seguenti tool di ingegneria (principalmente acquisita mediante esperienze lavorative e mediante corsi di formazione):

- Data processing: Matlab.
- Systems modelling, simulation and design: Simulink, Stateflow, CPNTools, Hypens.
- Model Based Engineering (SysML/Architectural Framework/UML): Artisan Studio.

ATTIVITÀ DIDATTICA

INCARICHI DIDATTICI

Incarichi di insegnamento ufficiali

Gennaio - Dicembre 2022

Docente a contratto per il corso di studi in Ingegneria Elettrica e delle Telecomunicazioni. Insegnamento di “Fondamenti di Automatica – I Modulo” Anno accademico 2021/2022

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia.

Dipartimento di Ingegneria Elettrica e dell’Informazione.

Argomenti del Corso: (1) Concetti fondamentali sui sistemi di controllo; (2) Modellistica e analisi nel dominio del tempo: Trasformata di Laplace e antitrasformazione di funzioni razionali; (3) Dinamica e specifiche nel dominio del tempo dei sistemi del primo e secondo ordine; (4) Modellazione dei sistemi elettrici, meccanici; (5) Regole per la semplificazione degli schemi a blocchi; (6) Stabilità; (7) Criterio di Routh; (8) Errori a regime; (9) Sintesi dei sistemi in retroazione; (10) Luogo delle Radici.

Gennaio - Dicembre 2019, 2021, 2022

Docente a contratto per il corso di studi in Ingegneria dei Sistemi Logistici per L’agroalimentare. Insegnamento di “Sistemi di Controllo” Anno accademico 2018/2019

Docente a contratto per il corso di studi in Ingegneria dei Sistemi Logistici per L’agroalimentare e di Ingegneria Gestionale. Insegnamento di “Analisi dei Sistemi di Controllo” Anni accademici 2020/2021- 2021/2022

Università degli Studi di Foggia, via A. Gramsci 89/91, Foggia (FO) – Italia.

Dipartimento di Scienze Agrarie, Alimenti, Risorse Naturali e Ingegneria (DAFNE)

Precedentemente: Dipartimento di Scienze Agrarie, degli Alimenti e dell'Ambiente.

Argomenti del Corso: (1) Concetti fondamentali sui sistemi di controllo; (2) Modellistica e analisi nel dominio del tempo: Trasformata di Laplace e antitrasformazione di funzioni razionali; (3) Dinamica e specifiche nel dominio del tempo dei sistemi del primo e secondo ordine; (4) Modellazione dei sistemi elettrici, meccanici; (5) Regole per la semplificazione degli schemi a blocchi; (6) Stabilità; (7) Criterio di Routh; (8) Errori a regime; (9) Sintesi dei sistemi in retroazione; (10) Reti correttrici e Regolatori PID.

Ottobre 2020 - Novembre 2020

Docente per il corso da Tecnico Superiore del Trasporto Intermodale 4.0. Modulo: "ICT e trasporto intermodale" – 20 h

Istituto Tecnico Superiore per la Logistica, Via Amendola 162/1, 70100, Bari (BA) - Italia

Argomenti del corso: La gestione dell'informazione e l'architettura informatica di un'azienda intermodale; Tracciabilità e rintracciabilità informatica; GPS, data visualization.

Dicembre 2019 - Gennaio 2020

Docente per il corso da Tecnico Superiore della Logistica Integrata. Modulo: "Supply chain ed i flussi fisici e informativi" – 10 h

Istituto Tecnico Superiore per la Logistica, Via Amendola 162/1, 70100, Bari (BA) - Italia

Argomenti del corso: ICT per la logistica, modellazione analisi e simulazione di terminal intermodali, sistemi ad eventi discreti, Data Envelopment Analysis, basi di SAP.

Dicembre 2018 - Gennaio 2019

Docente per il corso da Tecnico Superiore del Trasporto Intermodale. Modulo: "ICT applicate ai trasporti" – 20 h

Istituto Tecnico Superiore per la Logistica, Viale Japigia 188, 70100, Bari (BA) - Italia

Argomenti del corso: Business Process Management, Transportation Management System, Management of Intelligent Transportation Systems, Business Communication Networks.

Settembre 2017

Docenza per il corso da Tecnico Superiore del Trasporto Multimodale. Modulo: "Modellazione, analisi e gestione dei terminal di trasporto intermodale" – 5 h

Istituto Tecnico Superiore per la Logistica, via del Tratturello Tarantino 6, 74123, Taranto, Italia.

Argomenti del modulo: (1) Richiami sui concetti di base del Problem Solving; (2) Il problem solving nel caso della gestione di un terminal intermodale; (3) Procedure di decision making per la gestione efficiente delle risorse di un terminal: elementi fondamentali; (4) Sistemi ad eventi discreti: definizione e concetti di base; (5) Reti di Petri: definizioni e proprietà. Uso delle reti di Petri per la modellazione di un terminal intermodale; (6) Simulazione del comportamento dinamico di un terminal intermodale tramite reti di Petri; (7) Analisi prestazionale di un terminal intermodale tramite reti di Petri; (8) La Data Envelopment Analysis: concetti fondamentali e applicazione in ambito gestionale; (9) La procedura di decision-making per il caso reale General Transport Service.

Attività didattica per esercitazioni di sostegno ad altri corsi

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Da gennaio 2015 ad ottobre 2015

Esercitazioni di Laboratorio per il corso di Fondamenti di Automatica (I Modulo) di Ingegneria Elettronica e delle Telecomunicazioni (Laurea Triennale)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia.

- Esercitazioni di Laboratorio per il corso di Fondamenti di Automatica – I Modulo, presso il Laboratorio didattico LABIT del Politecnico di Bari sui seguenti temi: introduzione a MATLAB; Control System Toolbox; Simulazioni in Simulink; Luogo delle radici.

Docente del corso: Prof. Mariagrazia Dotoli – Professore Associato di Automatica presso il Dipartimento di Ingegneria Elettrica e dell'Informazione del Politecnico di Bari.

Attività di docenza per l'estero

Luglio 2021

Invited lecturer per la virtual 2021 Southwest Jiaotong University Global Summer Session, incarico di insegnamento dal titolo: "Basics on modeling and simulating transportation systems as discrete event systems".

Southwest Jiaotong University, China

- Insegnamento sui concetti fondamentali utili alla modellazione e simulazione di sistemi di trasporto come sistemi ad eventi discreti.

ATTIVITÀ DI SUPERVISIONE STUDENTI

Dal 2020 ad oggi

Co-tutor di studenti di dottorato

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia.

- Ing. Tresca Giulia (Politecnico di Bari) Dottorato di Ricerca in Ingegneria Elettrica e dell'Informazione XXXVI Ciclo; a.a. 2020-2023; Titolo della Ricerca: "Control systems and optimization methods for the industrial logistics", Politecnico di Bari, Bari – Italia.

- Ing. Askari Bahman (Politecnico di Bari) Dottorato di Ricerca in Ingegneria Elettrica e dell'Informazione XXXVI Ciclo; a.a. 2020-2023; Titolo della Ricerca: "Digital Twin of Manufacturing Lines for Performance and Maintenance Optimization", Politecnico di Bari, Bari – Italia.

- Ing. Proia Silvia (Politecnico di Bari) Dottorato di Ricerca in Industria 4.0 XXXVI Ciclo; a.a. 2020-2023; Titolo della Ricerca: "Decision and Control Techniques for the Collaborative Robotic Systems for Industry 4.0", Politecnico di Bari e Università degli Studi di Bari, Bari – Italia

- Ing. Bozza Augusto (Politecnico di Bari) Dottorato di Ricerca in Ingegneria Elettrica e dell'Informazione XXXVII Ciclo; a.a. 2021-2024; Titolo della Ricerca: "Digital Twin for the Control of Industrial Systems", Politecnico di Bari, Bari – Italia

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Dal 2014 ad oggi

Co-relatore ufficiale di + 30 Tesi di Laurea

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia.
Università degli studi di Cagliari, Piazza d'Armi, Cagliari (CA) – Italia.

ATTIVITÀ DI SUPERVISIONE STUDENTI

Dal 2018 ad oggi

Co-tutoraggio per project work di studenti dei corsi di laurea triennale in Ing. Elettronica e delle Telecomunicazioni (Fondamenti di automatica) – corsi di laurea magistrale in Ing. Gestionale (Analisi e simulazione di sistemi), Ing. Elettrica/Ing. dell'Automazione (Dynamical Systems Theory)

ATTIVITÀ SCIENTIFICA

TEMI DI RICERCA

- Supporto alle decisioni, modellistica, simulazione, gestione e controllo di sistemi complessi;
- Modellistica, controllo ed ottimizzazione per applicazioni industriali;
- Modellistica, gestione e controllo di sistemi di trasporto (intermodale e ferroviario);
- Gestione e controllo di sistemi energetici.

RICONOSCIMENTI SCIENTIFICI

Luglio 2021 a Giugno 2022

Assegnista di ricerca Post-Doc (SSD ING-INF/04 - Automatica)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia

Titolo della ricerca: “Tecniche di decisione e controllo per moduli di diagnostica mobile in applicazioni ferroviarie” – Progetto: PON MAIA 2014-2020 ARS01_00353.

- Ricerca volta alla definizione di tecniche di decisione e controllo per moduli di diagnostica mobile in applicazioni ferroviarie, con particolare riguardo agli Unmanned Aerial Vehicles.

Tutor: Prof. Mariagrazia Dotoli – Professore Ordinario di Automatica presso il Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari

Settore: Laboratorio di Decision & Control, coordinato dalla Prof. Mariagrazia Dotoli del Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari.

Maggio 2020 a Giugno 2021

Assegnista di ricerca Post-Doc (SSD ING-INF/04 - Automatica)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia

Titolo della ricerca: “Tecniche di decisione e controllo per infrastrutture critiche resilienti in presenza di incertezza” – Progetto: Rafael – PON 2014-2020 ARS01_00305.

- Ricerca volta alla definizione di tecniche di decisione e controllo per l’incremento della resilienza delle infrastrutture critiche, con particolare riguardo ai sistemi di fornitura di energia elettrica.

Tutor: Prof. Mariagrazia Dotoli – Professore Ordinario di Automatica presso il Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari

Settore: Laboratorio di Decision & Control, coordinato dalla Prof. Mariagrazia Dotoli del Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari.

Gennaio 2020 a Giugno 2021

Incarico di ricerca (fellowship) presso la Soutwest Jiaotong University of China

Southwest Jiaoting University – Chengdu - China

Titolo della ricerca: “Traffic management optimization for Urban Railway Networks based on Distributed Model Predictive Control” – National Natural Science Foundation of China - Grant No. 61950410604

- Research fellowship presso la Southwest Jiotong University, Chengdu, China attribuita dalla National Natural Science Foundation of China (NSFC), Grant No. 61950410604 all'interno del bando "Research Fund for International Young Scientists" categoria: "International (Regional) Cooperation and Exchange Projects". Durata: 12 mesi. Finanziamento: Yuan 200000. Titolo progetto di ricerca "Traffic Management Optimization for Urban Railway Networks based on Distributed Model Predictive Control". Estensione di 6 mesi del progetto per emergenza Covid19.

Host researcher: Assistant Professor Yin Tong.

Luglio 2021 – Giugno 2023

Collaboration agreement con la Soutwest Jiaotong University of China

Southwest Jiaoting University – Chengdu - China

Estensione della collaborazione di ricercar legata al tema “Traffic management optimization for Urban Railway Networks based on Distributed Model Predictive Control” – National Natural Science Foundation of China - Grant No. 61950410604

Host researcher: Assistant Professor Yin Tong.

Aprile 2019 ad Aprile 2020

Assegnista di ricerca Post-Doc (SSD ING-INF/04 - Automatica)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia

Titolo della ricerca: “Tecniche di controllo in tempo reale di processi industriali automotive tramite Model Predictive Control” – Progetto: Pico-e-Pro – PON 2014-2020 ARS01_01061.

- Ricerca volta all’innovazione delle tecniche di produzione del settore automotive, con particolare riguardo al processo di stampaggio.

Tutor: Prof. Mariagrazia Dotoli – Professore Ordinario di Automatica presso il Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari

Settore: Laboratorio di Decision & Control, coordinato dalla Prof. Mariagrazia Dotoli del Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari.

Da novembre 2017 a marzo 2019

Assegnista di ricerca (SSD ING-INF/04 - Automatica)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia.

Titolo della ricerca: “Decision Support Systems for Energy Efficient Buildings” – UCCMS progetto Cluster Puglia

- Ricerca nell’ambito dello Urban Control Center per l’efficientamento energetico cittadino in un contesto di Smart City development.

Tutor: Prof. Mariagrazia Dotoli – Professore Associato di Automatica presso il Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari

Settore: Laboratorio di Decision & Control, coordinato dalla Prof. Mariagrazia Dotoli del Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari.

Da aprile 2014 ad ottobre 2014

Assegnista di Ricerca (Settore ING-INF/04 - Automatica)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) - Italia.

Titolo della ricerca: “L’utilizzo di ICT per la gestione sostenibile dei sistemi di trasporto intermodale nelle smart city”.

- Ricerca nell’ambito delle Smart City, con particolare riguardo all’uso di tecnologie di informazione e comunicazione per la gestione sostenibile di sistemi di trasporto intermodale. Modellazione, simulazione, ottimizzazione, gestione, diagnosi e prognosi di sistemi ad eventi discreti. Reti di Petri.

Tutor: Prof. Mariagrazia Dotoli – Professore Associato di Automatica presso il Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari

Settore: Laboratorio di Decision & Control, coordinato dalla Prof. Mariagrazia Dotoli del Dipartimento di Ingegneria Elettrica e dell’Informazione del Politecnico di Bari.

COLLABORAZIONI CON GRUPPI DI RICERCA NAZIONALI ED INTERNAZIONALI

- gruppo di ricerca guidato dalla Prof. Carla Seatzu (Università di Cagliari);
- gruppo di ricerca dei Dr. Nicola Epicoco e Dr. Mario Di Ferdinando (Università dell’Aquila);
- gruppo di ricerca della Dr. Tong Yin (Southwest Jiaotong University, Cina);

- gruppo di ricerca dei Proff. Bart De Schutter e Ton van den Boom (Delft University of Technology, Olanda);
- gruppo di ricerca guidato dalla Prof. Lidia Zakowska (Politecnico Tadeusz Kościuszko di Cracovia, Polonia);
- gruppo di ricerca guidato dal Prof. Slim Hammadi (CRIStAL Laboratory - Ecole-Central of Lille, Lille, Francia);
- gruppo di ricerca guidato dal Prof. João Paulo Ribeiro Pereira (Departamento de Informática e Comunicações, Instituto Politécnico de Bragança, Portogallo).

ATTIVITÀ EDITORIALE

Revisore per riviste/ conferenze internazionali dal 2014

* Electronics, MDPI
* Mathematics, MDPI
* Applied Sciences, MDPI
* Sensors, MDPI
* Sustainability, MDPI
* Discrete Dynamics in Nature and Society, Hindawi
* Annual Reviews in Control, Journal, Elsevier.
* Expert Systems with Applications, International Journal, Elsevier.
* Non Linear Analysis: Hybrid Systems Journal, IFAC, Elsevier.
* Discrete Event Dynamic Systems Journal, Springer.
* Information Sciences Journal, Elsevier.
* Robotics and Automation Letters, IEEE.
* Transactions on Automatic Control Journal, IEEE.
* Transactions on Automation Science and Engineering Journal, IEEE.
* Transactions on industrial Electronics Journal, IEEE.
* Transactions on Intelligent Transportation Systems Journal, IEEE.
* Transactions on Control System Technologies, Journal, IEEE.
* Transactions on Systems Man and Cybernetics: Systems, Journal, IEEE
* International Journal of Production Research, Taylor&Francis.
* Mathematics, Multidisciplinary Digital Publishing Institute.
* Soft Computing, Springer
* IEEE International Conference on Systems Man and Cybernetics 2019-2020-2021
* Vehicle Technology and Intelligent Transport Systems 2019-2020-2021
* IEEE International Conference on Intelligent Transportation Systems 2019-2020-2021
* Mediterranean Conference on Control and Automation 2019-2020-2021
* Emerging Technologies and Factory Automation.
* Conference on Vehicle Technologies and Transportation Systems.
* Control in Transportation Systems.
* IEEE International Conference on Automation Science and Engineering 2020-2021.
* International Conference on Computers & Industrial Engineering.
* European Control Conference.
* International Conference on Robotics and Automation.

Associate Editor e Guest Editor per riviste internazionali

Associate Editor per i seguenti journal dal 2020:

- Elsevier, Results in Control and Optimization (RICO).

Guest editor (con R. Carli, M. Di Ferdinando e N. Epicoco) per il seguente numero speciale:

- Rivista internazionale “Electronics” - Sezione “Systems & Control Engineering” sul tema “Novel Approaches to Improve the Efficiency and Resiliency of Dynamical Systems”.

Membro di comitati tecnici	Technical committee member: - SMCS Intelligent Systems to Human-aware Sustainability - IFAC TC 1.3 Discrete Event and Hybrid Systems; - IFAC TC 7.4 Transportation Systems; - IFAC TC 9.3 Control for Smart Cities.

ORGANIZZAZIONE DI EVENTI SCIENTIFICI

Responsabilità organizzative	Local Arrangements Chair della Mediterranean Conference on Control and Automation 2021 (MED2021) – 22-25 giugno 2021 – Bari – Italia Student Activity Chair della IEEE International Conference on Automation Science and Engineering 2020 (CASE2020)– 20-24 agosto 2020 – Hong Kong – Cina Organizing Committee Member del Workshop: "International Workshop on Smart Mobility in Future Cities: The Apulia Industry Summit", 7 ottobre 2019, Bari, Italy
Appartenenza a comitati di programma e attività editoriale	Associate Editor per le seguenti conferenze: * IEEE 24th International Conference on Intelligent Transportation Systems, Regular Papers, Indianapolis, USA, September 19-21, 2021 * IEEE International Conference on Systems Man and Cybernetics SMC 2021, Melbourne, Australia, October 17-20, 2021. * IEEE 17th International Conference on Automation Science and Engineering CASE 2020; Lyon, France August 23-27, 2021. * IEEE 23rd International Conference on Intelligent Transportation Systems, Regular Papers, Rhodes, Greece, September 20-23, 2020. * IEEE International Conference on Systems Man and Cybernetics SMC 2020, Toronto, Canada, October 11-14, 2020. * IEEE 16th International Conference on Automation Science and Engineering CASE 2020, Associate Editor for RP: Automation for Manufacturing and Logistics, SS: Automation for Manufacturing and Logistics; Hong Kong, August 20-24, 2020. * IEEE International Conference on Systems Man and Cybernetics SMC 2019, Bari, Italy, October 7-9, 2019. * IEEE 15th International Conference on Automation Science and Engineering CASE 2019, RP: Manufacturing Automation and Automation for Energy Efficiency and Sustainability, SS: Manufacturing Automation and Automation for Energy Efficiency and Sustainability, Vancouver, Canada, August 22-26, 2019. * IEEE 22nd International Conference on Intelligent Transportation Systems, Regular Papers, Auckland, NZ, October 27-30, 2019. * IEEE 21st Intelligent Transportation System Society Conference 2018, Special Session Rail, Maui, Hawaii, USA, November 4-7, 2018. International/Technical Program Committee member per le seguenti conferenze: * International Conference on Transport and Smart Cities 2020 ICoTSC20, October 19-21, 2020, Madrid, Spain;

* International Conference on Emerging Networks and Systems Intelligence EMERGING 2020, July 26-30, 2020, Nice, France.

* International Conference on Emerging Networks and Systems Intelligence EMERGING 2019, September 22-26, 2019, Porto, Portugal.

* IFAC Workshop on Control of Smart Grids and Renewable Energy Systems, June 10-12, 2019, Jeju, Korea.

* 2019 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2019), October 6-9, 2019, Bari, Italy.

* 5th International Conference on Vehicle Technology and Intelligent Transportation Systems (VEHITS 2019), May 3- 5, 2019, Heraklion, Creete, Greece.

* 24th International Conference on Emerging Technologies and Factory Automation (ETFA 2019) - Track 4 – Automated Manufacturing Systems, September 10-13, 2019, Zaragoza, Spain.

* 1st IFAC Workshop on Control of Transportation Systems (WCTS 2019), June 30 - July 1, 2019, Technion – Israel Institute of Technology, Haifa, Israel.

Chair o Co-Chair nei seguenti convegni di carattere internazionale

* Invited Session Chair: "Power Systems and Industrial Automation" – 16-18 September, 2020. (MED2020) Saint Rafael, France (Virtual conference).

* Special Session Co-chair "Formal Methods applied to Transportation and Industry 4.0" per la 7th International Conference on Control, Decision and Information Technologies 2020, Codit'20, 29 Giugno-2 Luglio, 2020, Prague, Czech Republique.

* Invited Session Co-Chair: "Planning, scheduling, and coordination of logistics and transportation systems", 15th IFAC Symposium on Control in Transportation Systems (CTS 2018), June 6-8, 2018, Savona, Italy.

Co-organizer di sessioni invitate nei seguenti convegni di carattere internazionale

Organizzazione di sessioni invitate/speciali

* Invited Sessions Organizer per la Mediterranean Conference on Control and Automation 2021 (MED 2021)– 22-25 giugno 2021 – Bari – Italia: "Smart Transportation and Logistics Systems" e "Innovative Control and Communication Approaches for Smart City and Industry 4.0"

* Special Session Co-Organizer "Formal Methods applied to Transportation and Industry 4.0" per la 7th International Conference on Control, Decision and Information Technologies 2020, Codit'20, 29 Giugno-2 Luglio, 2020, Prague, Czech Republique.

* Invited Session Co-Organizer: "Planning, scheduling, and coordination of logistics and transportation systems", 15th IFAC Symposium on Control in Transportation Systems (CTS 2018), June 6-8, 2018, Savona, Italy.

PARTECIPAZIONE A PROGETTI DI RICERCA

Progetti di ricerca nazionali

- 2021-2022, progetto MAIA, finanziato dal Ministero dell'Istruzione, dell'Università e della Ricerca nell'ambito del bando per Progetti di ricerca industriale e lo Sviluppo sperimentale nelle 12 aree di specializzazione individuate nel PNR 2015-2020, 30 mesi, collaborazione del gruppo di ricerca del Decision and Control Laboratory DEI – Politecnico di Bari (responsabile locale per il partner Politecnico di Bari la Prof. C. Ciminelli, coordinatore MER MEC SPA);

- 2018-2021, progetto RAFAEL (System for Risk Analysis and Forecast for critical infrastructure in the ApenninEs dorsaL Regions) , finanziato dal Ministero dell'Istruzione, dell'Università e della Ricerca nell'ambito del bando per Progetti di ricerca industriale e lo Sviluppo sperimentale nelle 12 aree di specializzazione individuate nel PNR 2015-2020, 42 mesi, collaborazione del gruppo di ricerca del Decision and Control Laboratory con le aziende e-distribuzione, ANAS, TIM ed istituti di ricerca ENEA, INGV

(responsabile locale per il partner Politecnico di Bari la Prof. M. Dotoli, coordinatore ENEA);

- 2018-2021, progetto PICO&PRO (Processi Integrati e COnnessi per l'Evoluzione Industriale nella PROduzione), finanziato dal Ministero dell'Istruzione, dell'Università e della Ricerca nell'ambito del bando per Progetti di ricerca industriale e lo Sviluppo sperimentale nelle 12 aree di specializzazione individuate nel PNR 2015-2020, 42 mesi, collaborazione del gruppo di ricerca del Decision and Control Laboratory con le aziende Centro Ricerche FIAT SpA Gigant SpA, Tiberina SpA, Magneti Marelli SpA, (responsabile locale per il partner Politecnico di Bari il Prof. L. Tricarico, coordinatore Centro Ricerche FIAT SpA);

Progetti di ricerca regionali

- 2013-2015, progetto RES NOVAE (Reti, Edifici, Strade: Nuovi Obiettivi Virtuosi per l'Ambiente e l'Energia) finanziato dal Ministero dell'Istruzione, dell'Università e della Ricerca nell'ambito del bando "Smart cities and Communities" nel programma PON R&C 2007-2013, 36 mesi, collaborazione del gruppo di ricerca del Decision and Control Laboratory con le aziende Tera SRL, e-distribuzione (ex Enel Distribuzione) e IBM, nonché il Comune di Bari (responsabile locale per il partner Politecnico di Bari il Prof. M. Savino, coordinatore Enel Distribuzione).

- 2016-2019, progetto UCCSM (Urban Control Center per il monitoraggio dei flussi energetici dei comuni pugliesi), finanziato dal bando Regione Puglia "Cluster tecnologici regionali per l'innovazione", circa 2200k€ (circa 490k€ Politecnico di Bari), 27 mesi, collaborazione del gruppo di ricerca del Decision and Control Laboratory con le aziende SIM-NT Srl, TERA SRL ed e-Distribuzione (responsabile locale per il partner Politecnico di Bari la Prof. M. Dotoli, coordinatore SIM-NT Srl).

Enti pubblici e privati

Collaborazione con il Laboratorio Pubblico Privato IoT4.0 tra Politecnico di Bari -Elettric80 SPA – Isires (Istituto Italiano di Ricerca e Sviluppo)

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia
Elettric80 SPA, Via G. Marconi, 23 - 42030 Viano, Reggio Emilia - Italia
Isires, via Principe Amedeo, 12 – 10123 Torino - Italia

Progetti: 'Smart Picking' e 'Yard Management System/ Transport Management System'
• Collaborazione e coordinamento borsisti per il progetto Smart Picking – Work Package 1 (Bin Packing): definizione e ottimizzazione del problema del bin packing per applicazioni in ambito industriale;
• Collaborazione e coordinamento borsisti per il progetto YMS/TMS – Work Package 3: schedulazione e ottimizzazione del carico merci in unità di carico e delle rotte di trasporto.

Responsabile scientifico del Laboratorio Pubblico-Privato: Prof. Luigi Alfredo Grieco.
Responsabile scientifico dei WP: Prof. Mariagrazia Dotoli.

INDICATORI BIBLIOMETRICI

- *Numero di lavori nel database Scopus*: 31.
- *Numero di citazioni nel database Scopus*: 246.
- *h-index nel database Scopus*: 10
- Superamento prima mediana seconda fascia – SÌ: n. 9 lavori su riviste internazionali censite su Scopus pubblicati negli ultimi 5 anni (valore mediana del settore 8).
- Superamento seconda mediana seconda fascia – SÌ: n. 245 citazioni negli ultimi 10 anni su Scopus (valore mediana del settore 221).
- Superamento terza mediana seconda fascia – SÌ: valore 10 per h-index negli ultimi 10 anni su Scopus (valore mediana del settore 8).

Profilo Google Scholar: https://scholar.google.com/citations?user=44VkhncAAAAJ&hl=it

Profilo Scopus: https://www.scopus.com/authid/detail.uri?authorId=56423553700

ELENCO DELLE PUBBLICAZIONI SCIENTIFICHE

Atti di conferenza

c1 Tong, Y., Wei, X., Dotoli, M., **Cavone, G.,** An Integrated Model Predictive Control Method for the Rescheduling of Metro Traffic with Backup Trains, 2022 American Control Conference (ACC), 2022, Atlanta, Georgia, USA. Submitted.

c2 Luo, J., Tong, Y., **Cavone, G.**, & Dotoli, M. (2021). A Service-oriented Metro Traffic Regulation Method for Improving Operation Performance, IEEE International Conference on Intelligent Transportation Systems (ITSC), 2021, Indianapolis, USA.

c3 Proia, S., Carli, R., **Cavone, G.**, & Dotoli, M. (2021, August). A Literature Review on Control Techniques for Collaborative Robotics in Industrial Applications. In 2021 IEEE 17th International Conference on Automation Science and Engineering (CASE) (pp. 591-596). IEEE.

c4 Bozza, A., **Cavone, G.**, Carli, R., Mazzoccoli, L., & Dotoli, M. (2021, August). An MPC-based Approach for the Feedback Control of the Cold Sheet Metal Forming Process. In 2021 IEEE 17th International Conference on Automation Science and Engineering (CASE) (pp. 286-291). IEEE.

c5 Scarabaggio, P., Carli, R., **Cavone, G**., Epicoco, N., & Dotoli, M. (2021, August). Modeling, Estimation, and Optimal Control of Anti-COVID-19 Multi-dose Vaccine Administration. In 2021 IEEE 17th International Conference on Automation Science and Engineering (CASE) (pp. 990-995). IEEE.

c6 Atrigna, M., Buonanno, A., Carli, R., **Cavone, G.**, Scarabaggio, P., Valenti, m., Graditi, G., Dotoli, M., (2021), Effects of Heat Waves on the Failure of Power Distribution Grid: a Fault Prediction System Based on Machine Learning, International Conference on Environment and Electrical Engineering (EEEIC), Bari, Italy.

c7 **Cavone, G.**, Carli, R., Troccoli, G., Tresca G., & Dotoli, M., A MILP Approach for the Multi-Drop Container Loading Problem Resolution in Logistics 4.0, *2021 29th Mediterranean Conference on Control and Automation (MED)*, Bari, Italy, 2021, pp. 687-692, doi: 10.1109/MED51440.2021.9480359.

c8 **Cavone, G.**, Epicoco, N., Carli, R., Del Zotti, A., Paulo Ribeiro Pereira, J., & Dotoli, M., Parcel Delivery with Drones: Multi-criteria Analysis of Trendy System Architectures, 2021 29th Mediterranean Conference on Control and Automation (MED), Bari, Italy, 2021, pp. 693-698, doi: 10.1109/MED51440.2021.9480332.

c9 Scarabaggio, P., Carli, R., **Cavone, G.**, Epicoco, N., & Dotoli, M., Modeling, Estimation, and Analysis of COVID-19 Secondary Waves: the Case of the Italian Country, *2021 29th Mediterranean Conference on Control and Automation (MED)*, Bari, Italy, 2021, pp. 794-800, doi: 10.1109/MED51440.2021.9480319.

c10 Carli, R., **Cavone, G.**, Epicoco, N., Di Ferdinando, M., Scarabaggio, P., & Dotoli, M. (2020, October). Consensus-Based Algorithms for Controlling Swarms of Unmanned Aerial Vehicles. In International Conference on Ad-Hoc Networks and Wireless (pp. 84-99). Springer, Cham.

c11 **Cavone, G.**, Epicoco, N., & Dotoli, M. (2020, September). Process Re-engineering Based on Colored Petri Nets: the Case of an Italian Textile Company. In *2020 28th Mediterranean Conference on Control and Automation (MED)* (pp. 856-861). IEEE.

c12 **Cavone, G.**, Montaruli, V., Van Den Boom, T. J., & Dotoli, M. (2020, June). Demand-Oriented Rescheduling of Railway Traffic in Case of Delays. In 2020 7th International Conference on Control, Decision and Information Technologies (CoDIT) (Vol. 1, pp. 1040-1045). IEEE.

c13 Carli R., **Cavone G.**, Pippia T., De Schutter, B., Dotoli, M., "A Robust MPC Energy Scheduling Strategy for Multi-Carrier Microgrids", IEEE CASE2020, International Conference on Automation Science and Engineering, Hong Kong China, 2020.

c14 Carli, R., **Cavone, G.**, Dotoli, M., Epicoco, N., & Scarabaggio, P. (2019, October). Model predictive control for thermal comfort optimization in building energy management systems. *In 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC)* (pp. 2608-2613). IEEE.

c15 Carli, R., **Cavone, G.**, Dotoli, M., Epicoco, N., Manganiello, C., & Tricarico, L. (2019, October). ICT-based Methodologies for Sheet Metal Forming Design: A Survey on Simulation Approaches. *In 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC)* (pp. 128-133). IEEE.

c16 **Cavone, G.**, Blenkers, L., van den Boom, T., Dotoli, M., Seatzu, C., & De Schutter, B. (2019, April). Railway disruption: a bi-level rescheduling algorithm. *In 2019 6th International Conference on Control, Decision and Information Technologies (CoDIT)* (pp. 54-59). IEEE

c17 **G. Cavone**, M. Dotoli, N. Epicoco, D. Morelli, and C. Seatzu, "A Game-theoretical Design Technique for Multi-stage Supply Chains under Uncertainty", *14th IEEE International Conference on Automation Science and Engineering* (*CASE 2018*), Munich, Germany, 2018, pp. 528-533.

c18 **G. Cavone**, M. Dotoli, N. Epicoco, M. Franceschelli and C. Seatzu, "Hybrid Petri Nets to Re-design Low-Automated Production Processes: the Case Study of a Sardinian Bakery," *2018 14th International Workshop on Discrete Event Systems (WODES 2018)*, Castellamare di Stabia, Italia, 2018, *IFAC-PapersOnLine,* 51(7), 265-270.

c19 **G. Cavone**, M. Dotoli, N. Epicoco, and C. Seatzu, "Efficient Resource Planning of Intermodal Terminals under Uncertainty," *2018 15th IFAC Symposium on Control in Transportation Systems* (CTS 2018), Savona, Italia, 2018, *IFAC-PapersOnLine,* 51(9), 398-403.

c20 **G. Cavone**, M. Dotoli and C. Seatzu, "Resource planning of intermodal terminals using timed Petri nets," *2016*

13th International Workshop on Discrete Event Systems (WODES), Xi'an, China, 2016, pp. 44-50.

c21 M. Dotoli, N. Epicoco, M. Falagario, **G. Cavone**, "A Timed Petri Nets Model for Intermodal Freight Transport Terminals", *International Workshop on Discrete Event Systems*, Paris-Cachan, France, May 14-16, 2014;

c22 M. Dotoli, N. Epicoco, M. Falagario, B.Turchiano, **G. Cavone**, A. Convertini, "A Decision Support System for Real-Time Rescheduling of Railways", *European Control Conference*, Strasbourg, France, 2014;

Articoli su rivista scientifica internazionale

c23 M. Dotoli, N. Epicoco, M. Falagario, **G. Cavone,** "Simulation and Performance Evaluation of an Intermodal Terminal using Petri Nets", CoDIT '14, *International Conference on Control Decision and Information Technologies*, Metz, France, November, 2014.

j1 Tresca, G., **Cavone, G.**, Carli, R., & Dotoli, M., (2021), Automated Bin Packing: a Layer Building Optimization Module for Cost Effective Logistics, IEEE Transactions on Automation Science and Engineering, first review round.

j2 **Cavone, G.**, Bozza, A., Carli, R., & Dotoli, M., (2021), An MPC-based Process Control of the Industrial Cold Sheet Metal Forming, IEEE Transactions on Automation Science and Engineering, submitted.

j3 Cari, R., **Cavone, G.**, Pippia, T., De Schutter, B., Dotoli, M., Robust Optimal Control for Demand Side Management of Multi-Carrier Microgrids, (2021), IEEE Transactions on Automation Science and Engineering, conditionally accepted.

j4 Proia, S., Carli, R., **Cavone, G.,** Dotoli, M., (2021) Control Techniques for Safe, Ergonomic, and Efficient Human-Robot Collaboration in the Digital Industry: a Survey, IEEE Transactions on Automation Science and Engineering, conditionally accepted.

j5 Scarabaggio, P., Carli, R., **Cavone, G.**, Epicoco, N., & Dotoli, M. (2021). Nonpharmaceutical Stochastic Optimal Control Strategies to Mitigate the COVID-19 Spread. IEEE Transactions on Automation Science and Engineering, in press.

j6 **Cavone, G.**, van den Boom, T., Blenkers, L., Dotoli, M., Seatzu, C., & De Schutter, B. (2020). An MPC-Based Rescheduling Algorithm for Disruptions and Disturbances in Large-Scale Railway Networks. IEEE Transactions on Automation Science and Engineering, doi: 10.1109/TASE.2020.3040940

j7 Carli, R., **Cavone, G.,** Epicoco, N., Scarabaggio, P., & Dotoli, M. (2020). Model predictive control to mitigate the COVID-19 outbreak in a multi-region scenario. Annual Reviews in Control, vol. 50, pp. 373-393, ISSN 1367-5788.

j8 Scarabaggio, P., Carli, R., **Cavone, G.**, & Dotoli, M. (2020). Smart Control Strategies for Primary Frequency Regulation through Electric Vehicles: A Battery Degradation Perspective. Energies, 13(17), 4586.

j9 Hosseini, S. M., Carli, R., **Cavone, G.**, & Dotoli, M. (2020). Distributed control of electric vehicle fleets considering grid congestion and battery degradation. Internet Technology Letters, 3(3), e161.

j10 **Cavone, G.**, Dotoli, M., Epicoco, N., Morelli, D., & Seatzu, C. (2020). Design of Modern Supply Chain Networks Using Fuzzy Bargaining Game and Data Envelopment Analysis. IEEE Transactions on Automation Science and Engineering.

j11 Carli, R., **Cavone**, G., Ben Othman, S., & Dotoli, M. (2020). IoT Based Architecture for Model Predictive Control of HVAC Systems in Smart Buildings. Sensors, 20(3), 781.

j12 **G. Cavone**, M. Dotoli, C. Seatzu 'A Survey on Petri Net Models for Freight Logistics and Transportation Systems', *IEEE Transactions on Intelligent Transportation Systems,* vol. 19, no. 6, pp. 1795-1813, June 2018.

j13 **G. Cavone**, M. Dotoli, N. Epicoco, C. Seatzu 'Intermodal Terminal Planning by Petri Nets and Data Envelopment Analysis', *Control Engineering Practice,* Elsevier, vol. 69, pp. 9-22, 2017.

j14 **G. Cavone**, M. Dotoli, N. Epicoco, C. Seatzu, "A decision making procedure for robust train rescheduling based on mixed integer linear programming and Data Envelopment Analysis", *Applied Mathematical Modelling*, vol. 52, pp. 255-273, Dec., 2017.

j15 M. Dotoli, N. Epicoco, M. Falagario and **G. Cavone**, "A Timed Petri Nets Model for Performance Evaluation of Intermodal Freight Transport Terminals," in *IEEE Transactions on Automation Science and Engineering*, vol. 13, no. 2, pp. 842-857, April 2016.

j16 **G. Cavone**, M. Dotoli, C. Seatzu, "Management of Intermodal Freight Terminals by First Order Hybrid Petri Nets", in *IEEE Robotics and Automation Letters*, issue 1, vol 1, pp 2-9, January 2016.

AGGIORNAMENTO E FORMAZIONE

18 – 20 luglio 2019

SIDRA 2019 – Summer school (20h)

Centro residenziale universitario – Bertinoro – Cesena - Italia

Corso di approfondimento su: “Intelligent collaborative robotics”

Docenti: Prof. Claudio Melchiorri, Dr. Andrea Zanchettin

01 – 08 luglio 2018

Visiting Post-doc research fellow - Technische Universiteit Delft

Technische Universiteit Delft – Delft center for Systems and Control, Mekelweg, 2 , Delft – Olanda

- Ricerca nell’ambito del trasporto smart e sostenibile nell’ambito del progetto Cluster Urban Control Center per l’efficientamento energetico cittadino in un contesto di Smart City development. Focus su: rescheduling del traffico in caso di interruzioni prolungate del servizio, ottimizzazione distribuita e model predictive control.

Tutor:

Prof. Bart De Schutter – Professore Ordinario di Sistemi di Trasporto Intelligenti e Controllo Ibrido presso il Centro per i Sistemi e il Controllo, Facoltà di Ingegneria Meccanica, Marittima e dei Materiali, Università Tecnologica di Delft, Olanda.

Prof. Ton van den Boom - Professore Associato presso il Centro per i Sistemi e il Controllo, Facoltà di Ingegneria Meccanica, Marittima e dei Materiali, Università Tecnologica di Delft, Olanda.

Aprile – Giugno 2018

Corso di ‘Management and control approaches for flexible and efficient smart grids’

Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

Basics of smart grids and low-carbon networks, impatto delle nuove tipologie di carichi sul sistema di generazione elettrica (e.g., veicoli elettrici e pompe di calore). I potenziali benefici delle power grid di nuova generazione, della flessibilità del lato utente, la gestione energetica negli edifici e il Model Predictive Control (MPC). Strutture di gestione dell’energia per gli edifici all’interno di una smart grid, basati sull’MPC.

Docente: Prof. Alessandra Parisio, University of Manchester, Manchester, United Kingdom.

Da novembre 2016 ad aprile 2017

Visiting PhD Student alla Technische Universiteit Delft

Technische Universiteit Delft – Delft center for Systems and Control, Mekelweg, 2 , Delft – Olanda

- Ricerca nell’ambito dei trasporti ferroviari, rescheduling del traffico in caso di interruzioni prolungate del servizio, ottimizzazione distribuita e model predictive control.

Tutor:

Prof. Bart De Schutter – Professore Ordinario di Sistemi di Trasporto Intelligenti e Controllo Ibrido presso il Centro per i Sistemi e il Controllo, Facoltà di Ingegneria Meccanica, Marittima e dei Materiali, Università Tecnologica di Delft, Olanda.

Prof. Ton van den Boom - Professore Associato presso il Centro per i Sistemi e il Controllo, Facoltà di Ingegneria Meccanica, Marittima e dei Materiali, Università Tecnologica di Delft, Olanda.

21 ottobre 2016

Corso di formazione per la prevenzione e protezione nei luoghi di lavoro: Corso formazione dei lavoratori rischio basso - Modulo rischi specifici (4 h)

Servizio Prevenzione e Protezione dell’Università degli Studi di Cagliari, San Giorgio 12, 09124, Cagliari, Italia

- Acquisizione dei concetti generali in tema di sicurezza e prevenzione nel lavoro per lavoratori a rischio basso: i rischi negli ambienti di lavoro universitari; rischio incendio; segnaletica; primo soccorso; le caratteristiche degli ambienti di lavoro: requisiti strutturali, microclima, aerazione e illuminazione, macchine e attrezzature; videoterminali; rischio elettrico; percezione del rischio; comportamenti dei lavoratori; rischi trasversali: ergonomia, stress lavoro-correlato.

Docente: Stefania Usala

06 luglio 2016

Corso di formazione per la prevenzione e protezione nei luoghi di lavoro: Formazione generale dei lavoratori - Modulo 1 (4 h)

Servizio Prevenzione e Protezione dell'Università degli Studi di Cagliari, San Giorgio 12, 09124, Cagliari, Italia

- Acquisizione dei concetti generali in tema di sicurezza e prevenzione nel lavoro: rischio, danno, prevenzione, protezione, organizzazione della prevenzione aziendale, diritti doveri e sanzioni per i vari soggetti aziendali, organi di vigilanza controllo ed assistenza.

Docente: Marcella Vargiu

5 aprile 2016

Corso dottorale: Economia Ambientale (16 h)

Scuola di dottorato (SCUDO) del Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

- Studio degli effetti economici e territoriali derivanti dal rischio ambientale e delle attuali politiche contro i rischi ambientali e la promozione dello sviluppo sostenibile, comparazione di tali politiche tra paesi e determinazione di criteri teorico pratici di implementazione a vari livelli di governance e gli effetti economici, sociali ed ambientali da esse derivanti.

Docente: Prof. Caterina De Lucia

19 febbraio 2016

Corso dottorale: Probabilità e Statistica (24 h)

Scuola di dottorato (SCUDO) del Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

- Concetti di statistica descrittiva, delle modalità di sintesi di grandi masse di dati tramite pochi numeri rappresentativi o attraverso grafici significativi; statistica matematica; elementi di statistica inferenziale.

Docente: Prof. Michele Dassisti

25 gennaio 2016

Corso: Sistemi di Trasporto (96 h)

Laurea Specialistica in Ingegneria Civile del Politecnico di Bari, Via Amendola 126/B, 70126, Bari (BA) – Italia.

- Concetti di Tecniche, Sistemi, Economie e Pianificazione del Trasporto.

Docente: Prof. Mauro Dell'Orco

Dal 23 al 27 novembre 2015

Corso: Finanziare, Trasferire e Comunicare la Ricerca (16 h)

Intervento INNOVA.RE. Università degli studi di Cagliari, Piazza d'Armi, Cagliari (CA) – Italia.

- Tutela della proprietà intellettuale: brevetti, protezione software, copyright, etc. Principali strumenti di finanziamento: progetti europei, fondi regionali, bandi nazionali. Comunicazione e divulgazione della ricerca. Cultura di impresa: spin-off, Contamination lab, Start Cup.

Dal 23 al 27 febbraio 2015

Corso: Controllo Distribuito e Decentralizzato (21 h)

Università di Paris-Saclay, Gif-sur-Yvette, Parigi – Francia.

- Analisi di stabilità di sistemi a larga scala, controllo e controllabilità decentralizzata. Metodi di progettazione di controllo distribuito. Regolatori distribuiti basati su ottimizzazione e receding horizon. Progettazione di controllori locali di tipo plug and play con applicazione a power network e microgrids.

Docenti: Prof. Marcello Farina, Prof. Giancarlo Ferrari Trecate

13 maggio 2015
03 giugno 2015
10 giugno 2015

Seminari: Digital Asset Management, Internet of Things, Big Data Management (12 h)

Centro Ricerca, Studi e Sviluppi Superiori in Sardegna. Università degli studi di Cagliari, Piazza d'Armi, Cagliari (CA) – Italia.

- Seminari di disseminazione dei risultati della ricerca scientifica e tecnologica e corsi di alta formazione a carattere didattico su: Digital Asset Management, Internet of Things, Big Data Infrastructures, Logstasch, Scripting on Big Data, Big Data Hadoop.

ATTIVITÁ PROFESSIONALI

Luglio 2018 – marzo 2019

Ricerca industriale e sviluppo sperimentale per il progetto 'Unicarasau'

Il vecchio forno, Via Ogliastra, SN, D665, Fonni (NU), 08023 – Italia.

Progetto di ricerca 'Unicarasau – CUP 63D1700025006 a valere sul Bando 'Aiuti per progetti di ricerca e sviluppo ' – POR FESR 2014-2020-AZIONE 1, AZIONE1.1.3 finanziato dall'ATI UNICARASAU.

Inquadramento: Ricercatori e tecnici laureati nelle scienze matematiche e dell'informazione

Modellazione matematica e simulazione tramite reti di Petri ibride del processo di produzione. Individuazione e valutazione di tecniche e tecnologie atte al miglioramento dell'efficienza e del profitto aziendale.

Gennaio-dicembre 2017

Consulenza tecnica per 'Innolab' s.r.l.

Innolab s.r.l., Spin off del Politecnico di Bari, Via Celentano n. 30, 70125, Bari (BA) – Italia.

- Mappatura dei processi, analisi delle criticità, definizione dei requisiti aziendali to-be necessari alla riduzione e rimozione delle criticità mediante reingegnerizzazione e riorganizzazione dei processi.

Attività svolta per l'azienda Dream Project S.p.A. (Barletta – Italia) nell'ambito del Progetto 'Aiuti ai programmi integrati promossi da medie imprese' FESR 2014-2020 obiettivo convergenza

ORGANIZZAZIONI DI AFFERENZA

- Dal 2018 ad oggi Member dell'Institute of Electrical and Electronics (IEEE).
- Membro della IEEE Robotics and Automation Society e membro della IEEE Control System Society.
- Student Member dell'Institute of Electrical and Electronics Engineers dal 2016 al 2018 (IEEE).
- Collaborazione occasionale dal 2017 al 2018 con lo student branch IEEE di Cagliari – vice-chair: Ambra Demontis

DICHIARAZIONE

Consapevole delle sanzioni penali, nel caso di dichiarazioni non veritiere, di formazione o di uso di atti falsi, richiamate dall'art. 76 del D.P.R. 445/2000, la sottoscritta Graziana Cavone dichiara ai sensi degli Artt. 46 e 47 del D.P.R. n. 445 del 28/12/2000 che quanto sopra riportato corrisponde a verità e si riserva di comprovare specifici titoli su richiesta mediante opportuna documentazione. Fornisce altresì esplicito formale consenso al trattamento dei dati personali, ai sensi del D. Lgs. 196/2003 e dell'art. 13 GDPR (Regolamento UE 2016/679).

Curriculum Vitae

Marco Cognetti

Posizione attuale

Sett. 2020-Oggi

Assistant Professor presso Maynooth University

Esperienze precedenti

Gen. 2020 - Ago. 2020

Ricercatore postdoc presso il dipartimento UBICOMP della University of Oulu

Supervisor: Prof. Steven LaValle

Argomenti di ricerca: realtà virtuale, telepresenza, filtraggio, pianificazione del moto.

2017-2019

Ricercatore postdoc presso il CNRS in Irisa e Inria Rennes Bretagne Atlantique

Argomenti di ricerca: stima di stato, Gramiano, percezione attiva

2016-2017

Ricercatore postdoc presso il Dipartimento di Ingegneria Informatica, Automatica e Gestionale, Sapienza Università di Roma

Argomenti di ricerca: pianificazione del moto, robot umanoidi, identificazione e controllo di sistemi multi agente (aerei e su ruote), programmazione orientata ai robot e simulazioni dinamiche

Educazione

2012-2016

Ph.D. in Automatica e Ricerca Operativa, Sapienza, Università di Roma

Supervisore: Prof. Giuseppe Oriolo

Argomenti di ricerca: pianificazione del moto per robot umanoidi, identificazione e controlli di sistemi multi-robot (aerei e su ruote), simulazione e programmazione dei robot.

2008-2011

Laurea specialistica in Ingegneria dei Sistemi, Sapienza Università di Roma – voto finale 110/110 cum laude

Argomenti trattati: teoria dei sistemi non lineari, controllo dei sistemi non lineari, ottimizzazione, robotica, controllo con reti neurali di sistemi non lineari

Tesi

Mutual localization in 3-D environment with application to a quadrotor team - supervisore **Prof. G. Oriolo**

Argomenti trattati: filtri particellari, localizzazione per sistemi multi-robot, sviluppo del codice in C++ nel framework *MIP*

Università: Sapienza - Università di Roma con tesi svolta presso il Max Planck Institute for Biological Cybernetics di Tübingen (Germania)

2005-2008

Laurea triennale in Ingegneria Automatica e dei Sistemi di Automazione – Sapienza Università di Roma – voto finale 110/110 cum laude

Tesi

Pianificazione del moto per strutture robotiche ridondanti con cammino di end-effector assegnato - supervisore **Prof. G. Oriolo**

Università: Sapienza - Università di Roma

Insegnamento

2020-oggi – Docente

Docente per i corsi

- Robotic Actuation and Sensing (5 crediti, B.Sc. in Robotics and Intelligent Systems – Maynooth University)
- Control Systems Design (5 crediti, B.Sc. in Robotics and Intelligent Systems – Maynooth University)
- System Dynamics (5 crediti, B.Sc. in Robotics and Intelligent Systems – Maynooth University)
- Optimization Theory (7.5 crediti, M.Sc. in Ingegneria Elettronica – Maynooth University)

2012-2015 – Assistente

Assistente per i corsi (tenuti dal Prof. Giuseppe Oriolo in Sapienza, Università di Roma)

- Autonomous and Mobile Robotics (6 crediti, M.Sc. in Artificial Intelligence and Robotics and M.Sc. in Control Engineering – Sapienza, Università di Roma)
- Sistemi Multi-robot (3 crediti, M.Sc. in Artificial Intelligence and Robotics and M.Sc. in Control Engineering – Sapienza, Università di Roma)
- Sistemi Lineari di Controllo (9 crediti, B.Sc. in Ingegneria Elettronica – Sapienza, Università di Roma)

Supervisione

2020-Oggi — Supervisione di 6 tesi triennali e 3 magistrali presso la Maynooth University.

2012-2019 — Co-supervisione di almeno 20 tesi triennali/magistrali, ottenute supervisionando studenti da differenti corsi di laurea (computer science, controllisti e ingenegneri elettronici) presso Sapienza, Università di Roma.

Esperienze estere

2015 — **Studente in visita** presso il **Robotics Institute at Carnegie Mellon University**
supervisore: **Prof. Siddhartha Srinivasa**
Argomenti di ricerca: rearrangement planning, interazione basata su motori dinamici fisici, spazi di azione basati su oggetti e su robot.
Università ospitante: Robotics Institute presso il Carnegie Mellon University

2011 — **Studente in visita** presso il **Max Planck Institute for Biological Cybernetics**
Argomenti di ricerca: mutua-localizzazione per veivoli aerei, particle filters, stima di stato per sistemi multi-robot.
Università ospitante: Max Planck Institute for Biological Cybernetics – Tübingen (Germania)

2010 — **Erasmus** - **Università ospitante:** Università di Örebro (Svezia)

Organizzazione di Special Issue presso riviste internazionali

- M. Selvaggio, M. Cognetti, S. Ivaldi, B. Siciliano. Shared Autonomy for Physical Human-Robot Interaction. *IEEE Robotics and Automation Letters (RA-L)*, 2020.

Organizzazione di workshop presso conferenze internazionali

- M. Selvaggio, M. Cognetti, S. Ivaldi, B. Siciliano. Shared Autonomy: Learning and Control. *2020 IEEE Int. Conf. on Robotics and Automation*, 2020.
- M. Cognetti, J.-H. Ryu, D. Pratticchizzo, C. Pacchierotti Haptic-enabled shared control of robotic systems: a compromise between teleoperation and autonomy. In *2018 IEEE/RSJ Int. Conf. on Intelligent Robots & Systems*, 2018.

Competenze e attitudini personali

Madrelingua **Italiano**

Altre lingue **Inglese**, **Francese**

Autovalutazione
Livello europeo(*)

	Comprensione		Parlato		Scritto
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	B2 Livello intermedio	B2 Livello intermedio	B2 Livello intermedio	B2 Livello intermedio	B2 Livello intermedio
Francese	B2 Livello intermedio	B1 Livello intermedio	B1 Livello intermedio	B1 Livello intermedio	B1 Livello intermedio

(*) *Quadro comune europeo di riferimento per le lingue* (ERL)

Competenze tecniche

- **Linguaggi di programmazione (selezione):** C/C++, Java, Html, Php, JavaScript, bash scripting, Python
- **Software (selezione):** OpenCV, OrocosBFL, Armadillo, Eigen, Boost, ROS, Matlab/Simulink
- **Simulatori multi-robot:** Player/Stage/Gazebo, V-REP/CoppeliaSim, OpenRAVE
- **Montaggio foto/video:** Adobe Premiere, Adobe Photoshop, Adobe Illustrator
- **Crazione di documenti in pdf:** LaTeX

Competenze sociali

- forte attitudine al lavoro di gruppo
- capacità di mantenere entusiasmo anche sotto pressione e spiccata capacità di gestire la pressione
- capacità di fissare obiettivi personali
- abilità nell'instaurare rapporti con colleghi e professori, creando legami empatici
- forte passione nel lavoro, che porta ad investigare a fondo gli argomenti di ricerca trattati

Pubblicazioni

Pubblicazioni a rivista (journal)

J1 M. Selvaggio, M. Cognetti, S. Nikolaidis, S. Ivaldi and B. Siciliano, "Autonomy in Physical Human-Robot Interaction: A Brief Survey," inIEEE Robotics and Automation Letters, vol. 6, no. 4, pp. 7989-7996, and and 2021 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, 2021.

J2 M. Cognetti, M. Aggravi, C. Pacchierotti, P. Salaris, P. Robuffo Giordano. *Perception-Aware Human-Assisted Navigation of Mobile Robots on Persistent Trajectories*. IEEE IEEE Robotics and Automation Letters, vol. 5, no. 3, 2020. and 2020 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, 2020

J3 P. Salaris, M. Cognetti, R. Spica, P. Robuffo Giordano. *Online Optimal Perception-Aware Trajectory Generation*. IEEE Transactions on Robotics, vol. 35, no. 6, 2019.

J4 C. Gaz, M. Cognetti, A. Oliva, P. Robuffo Giordano, A. De Luca, *Dynamic Identification of the Franka Emika Panda Robot With Retrieval of Feasible Parameters Using Penalty-Based Optimization*. IEEE Robotics and Automation Letters, vol. 4, no. 4, 2019 and 2019 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Macau, China, Nov. 2019.

J5 P. Stegagno, M. Cognetti, G. Oriolo, H. H. Bülthoff, A. Franchi. *Ground and aerial mutual localization using anonymous relative-bearing measurements*. IEEE Transactions on Robotics, vol. 32, no. 5, 2016.

J6 L. Rosa, M. Cognetti, A. Nicastro, P. Alvarez, G. Oriolo. *Multi-task Cooperative Control in a Heterogeneous Ground-Air Robot Group*. *3rd IFAC Workshop on Multivehicle Systems*, Genova, Italy, May 2015.

J7 M. Cognetti, P. Stegagno, A. Franchi, G. Oriolo. *Two Measurement Scenarios for Anonymous Mutual Localization in Multi-UAV Systems*. *2nd IFAC Workshop on Multivehicle Systems*, Espoo, Finland, Oct. 2012.

Capitoli di libro

B1 A. Spada, M. Cognetti, A. De Luca, *Locomotion and telepresence in virtual and real worlds*. Human-Friendly Robotics and *Springer Proceedings in Advanced Robotics*, vol. 7, pp. 85-98, 2019.

Pubblicazioni a conferenza

C1 M. Cognetti, M. Aggravi, C. Pacchierotti, P. Salaris, P. Robuffo Giordano. *Shared Control Active Perception for Human-Assisted Navigation*. *2nd Italian Conference on Robotics and Intelligent Machines* (I-RIM), 2020.

C2 P. Ferrari, M. Cognetti and G. Oriolo. *Sensor-based Whole-Body Planning/Replanning for Humanoid Robots*. *19th IEEE-RAS Int. Conf. on Humanoid Robots* (ICHR'19), Toronto, Canada, Oct. 2019.

C3 P. Ferrari, M. Cognetti and G. Oriolo. *Anytime Whole-Body Planning/Replanning for Humanoid Robots*. *18th IEEE-RAS Int. Conf. on Humanoid Robots* (ICHR'18), Beijing, China, Nov. 2018

C4 M. Cognetti, P. Salaris, P. Robuffo Giordano. *Optimal Active Sensing with Process and Measurement Noise*. *2018 IEEE Int. Conf. on Robotics and Automation* (ICRA'18), Brisbane, Australia, May 2018

C5 P. Ferrari, M. Cognetti, G. Oriolo. *Humanoid Whole-Body Planning for Loco-Manipulation Tasks*. *2017 IEEE Int. Conf. on Robotics and Automation* (ICRA'17), Singapore, Singapore, May 2017

C6 M. Cognetti, D. De Simone, F. Patota, N. Scianca, L. Lanari, G. Oriolo. *Real-Time Pursuit-Evasion with Humanoid Robots*. *2017 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Singapore, Singapore, May 2017

C7 N. Scianca, M. Cognetti, L. Lanari, G. Oriolo. *Intrinsically Stable MPC for Humanoid Gait Generation*. 16th IEEE-RAS Int. Conf. on Humanoid Robots (ICHR'16), Cancun, Mexico, Nov. 2016

C8 J. King, M. Cognetti, S. Srinivasa. *Rearrangement planning using object-centric and robot-centric action spaces*. *2016 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Stockholm, Sweden, May 2016

C9 M. Cognetti, D. De Simone, L. Lanari, G. Oriolo. *Real-Time Planning and Execution of Evasive Motions for a Humanoid Robot*. *2016 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Stockholm, Sweden, May 2016

C10 M. Cognetti, V. Fioretti, G. Oriolo. *Whole-body Planning for Humanoids along Deformable Tasks*. *2016 IEEE Int. Conf. on Robotics and Automation* (ICRA'16), Stockholm, Sweden, May 2016

C11 M. Cognetti, P. Mohammadi, G. Oriolo. *Whole-Body Motion Planning for Humanoids based on CoM Movement Primitives*. *15th IEEE-RAS Int. Conf. on Humanoid Robots* (ICHR'15), Seoul, Korea, Nov. 2015

C12 M. Cognetti, P. Mohammadi, G. Oriolo, M. Vendittelli. *Task-Oriented Whole-Body Planning for Humanoids based on Hybrid Motion Generation*. *2014 IEEE/RSJ Int. Conf. on Intelligent Robots & Systems* (IROS'14), Chicago, Illinois, USA, Sept. 2014

C13 M. Cognetti, G. Oriolo, P. Peliti, L. Rosa, P. Stegagno. *Cooperative Control of a Heterogeneous Multi-Robot System based on Relative Localization*. *2014 IEEE/RSJ Int. Conf. on Intelligent Robots & Systems* (IROS'14), Chicago, Illinois, USA, Sept. 2014

C14 P. Stegagno, M. Cognetti, L. Rosa, P. Peliti, G. Oriolo. *Relative Localization and Identification in a Heterogeneous Multi-Robot System*. *2013 IEEE Int. Conf. on Robotics and Automation* (ICRA'13), Karlsruhe, Germany, May 2013

C15 M. Cognetti, P. Stegagno, A. Franchi, G. Oriolo, H. H. Bülthoff. *3-D Mutual Localization with Anonymous Bearing Measurements*. *2012 IEEE Int. Conf. on Robotics and Automation* (ICRA'12), St. Paul, MN, May 2012

C16 P. Stegagno, M. Cognetti, A. Franchi, G. Oriolo. *Mutual localization using anonymous bearing measurements*. *2011 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems* (IROS'11), San Francisco, CA, Sept. 2011

Tesi di dottorato

T1 M. Cognetti. *Motion planning for manipulation and/or navigation tasks with emphasis on humanoid robots*. Sapienza - University of Rome, 2016.

Il sottoscritto autorizza al trattamento dei dati personali, secondo quanto previsto dal D.Lgs. 196/2003

Claudio Roberto Gaz

Research Interests

Mathematical modeling, parameter identification and control of industrial and biological systems. In detail, dynamic parameters identification for robotic manipulators and physical human-robot interaction (safety and collaboration issues); modelling of the glucose-insulin system, physiological parameters identification and control of glycemia for insulin-resistant patients.

Qualifications

In 2019, I obtained the **Qualification as *Maître de conférences*** (MCF) for the class 61 -*Génie informatique, automatique et traitement du signal* (French National Qualification).

Work Experience

06/2021 – today

Research Fellow (Collaboratore di Ricerca) for the project "Modeling, identification, and control of soft robots in collaborative tasks" at the Department of Computer, Control and Management Engineering (DIAG) of Sapienza University of Rome (Italy).

03/2016 – 02/2021

Research Fellow (Assegnista di Ricerca) for the project "Dynamic modeling and control of lightweight robot manipulators" at the Department of Computer, Control and Management Engineering (DIAG) of Sapienza University of Rome (Italy). Topic: Dynamic modeling, parameters identification and control of lightweight manipulators.

- Participation in the European Project SYMPLEXITY (www.symplexity.eu). Dynamic identification of robots for allowing the physical collaboration between humans and robots during industrial polishing operations.

07/2015 – 11/2015

Visiting researcher at Deutsches Zentrums für Luft- und Raumfahrt (*DLR*), Oberpfaffenhoffen (Munich), Germany

04/2015 – 05/2015

Visiting researcher at Airbus (Airbus Group), Paris (France)

01/2014 – 08/2015

Università Cattolica del Sacro Cuore and CNR-IASI, Laboratorio di Biomatematica, Rome.

- Participation in the European Projects EDEN (https://www.eden-security-fp7.eu/), IMPRESS, PULSE. Realization of the webservice supplying the Physiological Model for a patient infected by a chemical agent. Collaboration within the modelling phase. Supervisor: Dr. Andrea De Gaetano and Prof. Daniele Gui.

11/2012 – 11/2015

Ph.D. Student in Automatic Engineering in Sapienza Università di Roma (winner of a scholarship fund)

- Participation in the European Project SAPHARI (www.saphari.eu). Dynamic identification for allowing safe and autonomous human-robot collaboration.

06/2012 – 01/2014

WLAB srl wireless ideas, Rome. In collaboration with Sapienza Università di Roma

- Participation of the FP7 European Project "Pleased", PLants Employed As SEnsing Devices (http://pleased-fp7.eu/). Signal analysis and classification with Machine Learning techniques.
  Supervisor: Prof. Andrea Vitaletti.

03/2012 – 11/2012

Sapienza Università di Roma, Rome.

- Research fellow for the project "Optimization of the camera-calibration procedure on the field" (Machine Learning techniques adopted, as Artificial Neural Networks).
  Supervisor: Prof. Luca Iocchi.

06/2011 – 07/2011

CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome

- Development of a web-service performing collaboration between software packages developed in Matlab, R and C++, by means of a GUI developed in php, allowing a remote user to perform several computations, such as data fitting and parameter estimation on compartmental models. The results are shown by means of a Matlab-produced-graph or a Gnuplot-produced-graph. The system is maintained on a server with LAMP architecture.
  Reference: Dr. Andrea De Gaetano.

04/2011 – 05/2011

CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome

- Realization of the website of the Biomathematics Laboratory of CNR-IASI (http://www.biomatematica.it/), by means of the CMS Joomla.
  Reference: Dr. Andrea De Gaetano.

09/2009 – 06/2010

CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome

- Regarding the participation of CNR-IASI to the European project "SICMA" ("Simulation of crises management activities") co financed in FP7 (Sec) (www.sicmaproject.eu): mathematical modeling and implementation (in C++ language) of the physiology of the virtual patient and his/her management in the instants immediately following the simulated accident, that is the cures on the accident location and the transport to the hospital.
  Supervisor: Dr. Andrea De Gaetano.

09/2009

CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome

- Co-organization role (13-26 September 2009) of the International Biomathematics Summer School held in Lipari (Italy) (September 2009) (http://www.biomatematica.it/lipari2009/index.html).
  Supervisor: Dr. Andrea De Gaetano.

06/2009-09/2009

CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome – in collaboration with 3M Deutschland GmbH.

- Realization of a web-service for storing data related to a multicentric efficacy study of the 3M™ Tegaderm™ CHG Chlorhexidine Gluconate IV Securement Dressing. In detail, database design and implementation of the related structures for insert and

retrieve data by means of a user-interface (used languages: SQL, Asp).
Reference: Dr. Andrea De Gaetano.

Teaching Experience

From A.Y. 2019 – 2020 to present
Teacher for the course of Robotics (*Fondamenti di Robotica Industriale*) for the students of the Master course of Ingegneria Informatica (Computer Engineering). Università Telematica Internazionale UNINETTUNO (I have also recorded the videolessons for the course)

From A.Y. 2018 – 2019 to present
Teacher for the course of *Control of Electromechanical Systems* for the students of the Erasmus Mundus Master Course in Sustainable Transportation and Electrical Power Systems. Sapienza University of Rome

A.Y. 2016 – 2017 and 2017 – 2018
Teaching assistant (tutor) for the course of *Mathematical Analysis 2* (*Analisi Matematica 2*) for the students of Management Engineering (Ingegneria Gestionale) at Sapienza University of Rome. Reference: Prof. Daniele Andreucci

From A.Y. 2014 – 2015 to present
Assistance to students of Robotics courses (bachelor and master deg.), especially for projects and theses. Teaching assistant for Robotics classes. Reference: Prof. Alessandro De Luca.

Seminars

12/04/2019
CNRS – IRISA (Institut de Recherche en Informatique et Systèmes Aléatoires), Rennes (France).

Active Collaborations

- CNRS – IRISA (Institut de Recherche en Informatique et Systèmes Aléatoires), Rennes (France) with Dr. Paolo Robuffo Giordano.
- CNR – IASI (Istituto di Analisi dei Sistemi ed Informatica), Rome (Italy) with Dr. Andrea De Gaetano and Dr. Pasquale Palumbo.
- Università dell'Aquila, L'Aquila (Italy) with Prof. Costanzo Manes.

Education

05/2016
PhD in Automation and Operational Research at Sapienza – Università di Roma (winner with scholarship)

12/2011
Sapienza – Università di Roma (Rome, Italy).
Master Degree in Systems Engineering (*Laurea Specialistica in Ingegneria dei Sistemi*).
Thesis title: A controllers population model for the pancreatic insulin production. Supervisor: Prof. Claudio Gori Giorgi.
Score: 110/110

03/2006
Università Roma Tre (Rome, Italy)

	Bachelor Degree in Computer Engineering (*Laurea in Ingegneria Informatica*). Thesis title: Control of a robot with flexible forearm by means of a nonlinear observer. Supervisor: Prof. Stefano Panzieri. Score: 110/110
07/2001	Liceo Cornelio Tacito, Rome. High school qualifications on classical literature (*Diploma di maturità classica*) . Score: 100/100

Known languages

Italian	mother tongue
English	Estimated level: C1
French	Estimated level: B1 (currently studying)
German	Estimated level: A2 (currently studying). B1 level class attended during the period spent at the DLR in Oberpfaffenhofen (DE)
Russian	Level A1 certified by the Pushkin State Russian Language Institute

Skills and expertise

Programming Languages	Very good knowledge of the following software and programming languages: • C/C++ • Matlab • Php • Asp • Java • Jsp • SQL (MySQL databases)
Operating Systems	Experience of use of the following O.S.s • Windows (XP, 7) • Linux (Ubuntu Desktop distribution)

Roma, 23/10/2021 Claudio Roberto Gaz

List of Publications

- Journal papers

J1. G. Turrisi, M. Capotondi, C. Gaz, V. Modugno, G. Oriolo, A. De Luca, "On-Line Learning for Planning and Control of Underactuated Robots with Uncertain Dynamics," accepted for publication in *IEEE Robotics and Automation Letters*, 2021.

J2. M. Ferro, C. Gaz, M. Anzidei, M. Vendittelli, "Online needle-tissue interaction model identification for force feedback enhancement in robot-assisted interventional procedures," *IEEE Transactions on Medical Robotics and Bionics*, 2021.

J3. C. Gaz, M. Cognetti, A. Oliva, P. Robuffo Giordano and A. De Luca, "Dynamic Identification of the Franka Emika Panda Robot With Retrieval of Feasible Parameters Using Penalty-Based Optimization," *IEEE Robotics and Automation Letters*, vol. 4, no. 4, pp. 4147-4154, Oct. 2019.

J4. A. De Gaetano, C. Gaz, S. Panunzi, "Consistency of compact and extended models of glucose-insulin homeostasis: The role of variable pancreatic reserve," *PLOS ONE* 14(2), 2019.

J5. C. Gaz, E. Magrini, A. De Luca, "A model-based residual approach for human-robot collaboration during manual polishing operations," *Mechatronics*, 55, pp. 234-247. 2018.

J6. C. Gaz, A. De Gaetano, C. Manes, P. Palumbo, A. Borri, S. Panunzi, "Effective control of glycemia using a simple discrete-delay model," *IFAC PapersOnLine*, 50(1), pp 13526-13531, 2017.

J7. A. Borri, S. Panunzi, R. Brancaleoni, D. Gui, S. Magalini, C. Gaz, A. De Gaetano, "Simulation of trauma incidents: modelling the evolution of patients and resources," *Journal of Medical Systems*, 40(11), 234. 2016.

J8. A. De Gaetano, C. Gaz, P. Palumbo, S. Panunzi, "A unifying organ model of pancreatic insulin secretion," *PLOS ONE*, 10(11), 2015.

J9. A. Pennisi, D. Bloisi, C. Gaz, L. Iocchi, D. Nardi, "Novel patterns and methods for zooming camera calibration," *Journal of WSCG*, 21(1), pp. 59-67. 2013.

J10. C. Gaz, G. Cremona, S. Panunzi, B. Patterson, A. De Gaetano, "A geometrical approach of PKPD of inhaled bronchodilators," *Journal of Pharmacokinetics and Pharmacodynamics*, 39(5), pp. 415-428. 2012.

- Book chapters

B1. A. De Gaetano, S. Panunzi, P. Palumbo, C. Gaz, T. Hardy, "Data-driven modeling of diabetes progression". In: Marmarelis V., Mitsis G. (eds) *Data-driven Modeling for Diabetes. Lecture Notes in Bioengineering*. Springer, Berlin, Heidelberg. 2014.

- Conference papers

C1. M. Pennese, C. Gaz, M. Capotondi, V. Modugno, A. De Luca, "Identification of Robot Dynamics from Motor Currents/Torques with Unknown Signs," in Proc. of *Italian Conference on Robotics and Intelligent Machines*, 2021. **Winner of the Best Student Paper Award**.

C2. C. Gaz, A. Cristofaro, A. De Luca, “Detection and isolation of actuator faults and collisions for a flexible robot arm,” in Proc. of the *IEEE International Conference on Decision and Control* (CDC), 2020.

C3. M. Capotondi, G. Turrisi, C. Gaz, V. Modugno, G. Oriolo, A. De Luca, “Learning Feedback Linearization Control Without Torque Measurements,” in Proc. of *Italian Conference on Robotics and Intelligent Machines*, 2020.

C4. M. Capotondi, G. Turrisi, C. Gaz, V. Modugno, G. Oriolo, A. De Luca, “An Online Learning Procedure for Feedback Linearization Control without Torque Measurements,” in Proc. of the *International Conference on Robot Learning* (CoRL), 2019.

C5. K. Al Khudir, G. Buondonno, C. Gaz, M. Khatib, E. Magrini, A. De Luca, “Experiences in Safe Physical Human-Robot Interaction,” in Proc. of *Italian Conference on Robotics and Intelligent Machines*, 2019.

C6. N. Cacciotti, A. Cifonelli, C. Gaz, V. Paduano, AV. Russo, M. Vendittelli, “Enhancing force feedback in teleoperated needle insertion through on-line identification of the needle-tissue interaction parameters,” in Proc. *IEEE RAS and EMBS International Conference on Biomedical Robotics and Biomechatronics*, 2018.

C7. C. Gaz, A. De Luca, “Payload estimation based on identified coefficients of robot dynamics – with an application to collision detection,” in Proc. *IEEE Conference on Intelligent Robots and Systems*, 2017.

C8. C. Gaz, F. Flacco, A. De Luca, “Extracting feasible robot parameters from dynamic coefficients using nonlinear optimization methods”. Proc. IEEE International Conference on Robotics and Automation, 2016.

C9. A. Borri, C. Dimopoulos, S. Panunzi, R. Brancaleoni, C. Gaz, D. Gui, S. Magalini, A. De Gaetano, “Modelling trauma physiology for large crisis management”. in Proc. *International Conference on Modeling and Applied Simulation*, 2016.

C10. E. Pacciani, A. Borri, PM. Soave, D. Gui, S. Magalini, S. Panunzi, C. Gaz, P. Gaudio, A. Malizia, A. De Gaetano, “Modelling and simulation for major incidents,” in Proc. 9th *International Conference on Pervasive Computer Technologies for Healthcare*, 2015.

C11. C. Gaz, F. Flacco, A. De Luca, “Identifying the dynamic model used by the KUKA-LWR: a reverse engineering approach,” in Proc. *IEEE Conference on Robotics and Automation*, 2014.

C12. A. De Gaetano, C. Gaz, C. Gori Giorgi, P. Palumbo, “An islet population model of pancreatic insulin production,” in *Proc. IEEE Conference on Decision and Control*, 2013.

C13. V. Manzella, C. Gaz, A. Vitaletti, E. Masi, L. Santopolo, S. Mancuso, D. Salazar, JJ. De Las Heras, “Demo abstract: Plants as Sensing Devices: The PLEASED experience,” in *Proc. 11th ACM Conference on Embedded Networked Sensor Systems*, 2013.

Roma, 23/10/2021

europass Curriculum Vitae

PERSONAL INFORMATION

Valerio Modugno

CURRENT POSITION

From Sep 2017

Postdoctoral Research Fellow
Sapienza University of Rome

Fields of Research: Robotics, Control Theory, Machine Learning

EDUCATION

Nov 2013 – Sep 2017

Ph.D in ABRO (Automatica, Bioingegneria e Ricerca Operativa)
Sapienza University of Rome

Thesis: Learning Safe controller for Motion Generation in Redundant Robot
Principal Subjects: Robotics, Control Theory, Machine Learning, Stochastic Black-Box Optimization, Whole-Body Control for Humanoids

Apr 2015 – Dec 2016

Visiting Researcher at Larsen, INRIA Grand-Est Nancy
Local Supervisor: Researcher Serena Ivaldi

Sep 2014 – Mar 2015

Visiting Researcher at Intelligent Autonomous System group, TU Darmstadt
Local Supervisor: Researcher Serena Ivaldi

Mar 2009 – Oct 2013

Master Degree in Control Engineering
110/110 cum laude

Sapienza University of Rome

Thesis: A Stochastic Learning Approach for Vision-Based Grasping
Principal Subjects: non-Linear System, Control Theory for Linear and non-Linear System, Optimal Control, Adaptive and Robust Control, Robotics, Computer Vision, Machine Learning.
Projects: implementation of a visual egomotion system for a monocular camera
implementation of a visual-based tracking system of mobile robots
implementation of a system for Structure from Motion
implementation of an automatic trading system through Granular Computing technique

Set 2011 – Mar 2012

LED (Luiss Entrepreneurship for Development)
Luiss Business School

Principal Subjects: General management, Business Planning, Business Modelling, Business Financing

Set 2005 – Mar 2009

Bachelor Degree in Control Engineering
110/110 cum laude

Sapienza University of Rome

Thesis: Motion Planning for Redundant Robot with Assigned End-Effector Path
Principal Subjects: Linear System, Base Control Theory, Operating System, Robotics, Programming, Electronics, Industrial Automation,
Project: control of electric motor through PIC microcontroller

Set 2000 – Jul 2005

High School Diploma
100/100

Liceo Scientifico Statale “Nomentano” Roma

ACADEMIA INFORMATION

Qualification

Recipient of the French scientific national qualification in 2020

Publications

I-RIM 2021

- *Identification of Robot Dynamics from Motor Currents/Torques with Unknown Signs,* M. Pennese, C. Gaz, M. Capotondi, V. Modugno, A. De Luca (**Winner of the best student paper award**)

RAL 2021

- *Bayesian neural network modeling and hierarchical mpc for a tendon-driven surgical robot with uncertainty minimization*, F Cursi, V Modugno, L Lanari, G Oriolo, P Kormushev
- *On-Line Learning for Planning and Control of Underactuated Robots with Uncertain Dynamics,* G. Turrisi, M. Capotondi, C. R. Gaz, V. Modugno, G. Oriolo, A. De Luca

IROS 2020

- *Model Predictive Control for a Tendon-Driven Surgical Robot with Safety Constraints in Kinematics and Dynamics*, F. Cursi, V. Modugno, P. Kormushev

IFAC 2020

- *Enforcing Constraints over Learned Policies via Nonlinear MPC: Application to the Pendubot*, G. Turrisi, B. Barros Carlos, M. Cefalo, V. Modugno, L. Lanari, G. Oriolo

RAL 2020

- *Learning Robust Task Priorities and Gains for Control of Redundant Robots*, L. Penco, E. Mingo Hoffman, V. Modugno, W. Gomes, J.B. Mouret, S. Ivaldi

ICRA 2020

- *ZMP constraint restriction for robust gait generation in humanoids*, F.M. Smaldone, N. Scianca, V. Modugno, L. Lanari, G Oriolo

RAM 2019

- *A Multimode Teleoperation Framework for Humanoid Loco-Manipulation:A Demonstration Using the iCub Robot*, L. Penco, N. Scianca, V. Modugno, L. Lanari, G. Oriolo, S. Ivaldi

CORL 2019

- *An Online Learning Procedure for Feedback Linearization Control without Torque Measurements*, M. Capotondi, G. Turrisi, C. Gaz, V. Modugno, G. Oriolo, A. De Luca

HUMANOIDS 2019

- *Humanoid Whole-Body Movement Optimization from Retargeted Human Motions,* W. Gomes, V. Radhakrishnan, L. Penco, V. Modugno, J.B. Mouret, S. Ivaldi
- *Gait Generation using Intrinsically Stable MPC in the Presence of Persistent Disturbances*, F. M. Smaldone, N. Scianca, V. Modugno, L. Lanari, G. Oriolo

HUMANOIDS 2018

- *Robust Real-time Whole-Body Motion Retargeting from Human to Humanoid*, L. Penco, B. Clement, V. Modugno, E. Mingo Hoffman, G. Nava, D. Pucci, Nikos G. Tsagarakis, J.-B. Mouret, S. Ivaldi
- *Learning robust task priorities of QP-based whole-body torque-controllers,* Marie Charbonneau, Valerio Modugno, Francesco Nori, Giuseppe Oriolo, Daniele Pucci, Serena Ivaldi

HUMANOIDS 2017

- *Safe trajectory optimization for whole-body motion of humanoids,* V. Modugno, G. Nava, D. Pucci, F. Nori, G. Oriolo, S. Ivaldi
- *Gait generation via intrinsically stable MPC for a multi-mass humanoid model,* N. Scianca, V. Modugno, L. Lanari, G. Oriolo

HUMANOIDS 2016

- *Learning Soft Task Priorities for Safe Control of Humanoid Robots with Constrained Stochastic Optimization,* V. Modugno, U. Chervet, G. Oriolo, S. Ivaldi

ICRA 2016

- *Learning soft task priorities for control of redundant robot*s, V. Modugno, G. Neumann, E. Rueckert, G. Oriolo, J. Peters, S. Ivaldi

IJJCI 2014

- *Combining Piecewise Linear Regression and a Granular Computing Framework for Financial Time Series Classification*, V. Modugno, F. Possemato, A. Rizzi
- *Information Granules Filtering for Inexact Sequential Pattern Mining by Evolutionary Computation*, E. Maiorino, F. Possemato, V. Modugno, A. Rizzi

Book chapter

Social Robotics 2016

- *One-Shot Evaluation of the Control Interface of a Robotic Arm by Non-experts In book Social Robotics,* S. Marichal A. Malaisé , V. Modugno , O. Dermy , F. Charpillet , S. Ivaldi

Summer School

Computational Intelligence 2016

- *Noise Sensitivity of an Information Granules Filtering Procedure by Genetic Optimization for Inexact Sequential Pattern Mining,* E. Maiorino, F. Possemato, V. Modugno, A. Rizzi

Regularization Method for Machine Learning by IIT, Genova 30 Jun - 4 Jul 2014
Online Learning Summer School by Copenhagen University, Copenhagen 28 Jun 2015 - 2 Jul 2015

WORK EXPERIENCE

Jul 2011 – Mar 2012 — Cofounder of no Profit Organization “Giovani Roma 2020”

Mar 2009 – Aug 2009 — Website developer for UTRI (now Finmeccanica Group)

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Computer skills / Technical skill

Deep knowledge of Kinova Jaco arm
Good knowledge of Kuka IIWA arm
Programming Language: C, C++, python, java, Matlab scripting, R scripting, PHP
Simulator: OpenRAVE, Gazebo
Library: OpenCV, GSL, CVD, R library, OpenGL, Intel SSD, Intel TBB, PCL.
good knowledge of markup languages and stylesheet
good knowledge of Office Framework and Latex
good knowledge of CMS (Drupal, Joomla)
good knowledge of Net Protocols
good knowledge of Microcontroller Programming
Operating System: Linux (different distribution), Windows, and iOS

Communication skills: Good communication and group interaction skills. Good teaching skills.

Organizational/managerial skills: Good flexibility and adaptability. Good ability to manage projects, acquired by supervising master student projects.

Driving license: B

Tommaso Proietti, Ph.D.

Postdoctoral Research Fellow

Education

Ph.D. in Robotics Engineering **Jan 2014 - Mar 2017**

Université Pierre et Marie Curie *Paris, France*

- Thesis: *Characterizing the reciprocal adaptation in physical Human-Robot Interaction to address the inter-joint coordination in neurorehabilitation*
- Supervisors: A. Roby-Brami, N. Jarrassé

MS in Control Engineering **Nov 2010 - Oct 2013**

Sapienza University of Rome *Rome, Italy*

- Final score: 110/110 magna cum laude
- Thesis: *Hybrid Dynamic Nonprehensile Manipulation: Application to a 3-DOF Robot*
- Supervisors: G. Oriolo (Sapienza University of Rome), K. Lynch (Northwestern University)

BS in Automated Systems Engineering **Sep 2007 - Oct 2010**

Sapienza University of Rome *Rome, Italy*

- Final score: 107/110
- Thesis: *Modeling and Controlling Composability Property in Embedded Systems by applying Hybrid Automata Theory*
- Supervisors: F. Delli Priscoli, A. Fiaschetti

Experience

Postdoctoral Research Fellow **Jun 2019 - present**

Harvard University *Cambridge, MA, USA*

Harvard John A. Paulson School of Engineering and Applied Science

- Main research topic: development and evaluation of soft wearable robots for upper-limb assistance.
- Affiliated with the Wyss Institute for Biologically Inspired Engineering.
- PI: Prof. Conor J. Walsh - Lab: Harvard Biodesign Lab

Control System Engineer **Apr 2017 - Apr 2019**

General Motors *Turin, Italy*

GM Global Propulsion Systems

- Control function development and algorithm design for GM diesel vehicles.
- Certification: GM Design For Six-Sigma - Green Belt

Ph.D. in Robotics Engineering **Jan 2014 - Mar 2017**

Université Pierre et Marie Curie *Paris, France*

ISIR - Institut des Système Intelligents et de Robotique

- Main research topic: development and evaluation of control strategies for wearable robots to induce relearning of motor coordination after stroke.
- PI: Prof. Agnes Roby-Brami

Visiting Research Fellow **Oct 2012 - Oct 2013**

Northwestern University *Evanston, IL, USA*

McCormick School of Engineering

- Main research topic: trajectory planning and control of a nonprehensile manipulator through hybrid dynamic modeling.
- PI: Prof. Kevin M. Lynch - Lab: Neuroscience and Robotics Lab

Publications

Orcid: 0000-0002-8875-8646.
Google Scholar metrics: 10 publications, 405 citations, h-index 5, i10-index 5.
PDFs available on personal website: tommasoproietti-robotics.github.io

Journal Papers

6. Zhou Y.M., Hohimer C., **Proietti T.**, O'Neill C., Walsh C. (2021) Kinematics-based control of an inflatable soft wearable robot for assisting the shoulder of industrial workers, *IEEE Robotics and Automation Letters*, vol. 6:2, pp. 2155-2162.
5. **Proietti T.***, O'Neill C.*, Hohimer C., Nuckols K., Clarke M., Zhou Y.M., Lin D., Walsh C. (2021) Sensing and control of a multi-joint soft wearable robot for upper-limb assistance and rehabilitation, *IEEE Robotics and Automation Letters*, vol. 6:2, pp. 2381-2388. *Authors equal contribution.
4. O'Neill C.*, **Proietti T.***, Nuckols K., Clarke M., Hohimer C., Cloutier A., Lin D., Walsh C. (2020) Inflatable soft wearable robot for reducing therapist fatigue during upper extremity rehabilitation in severe stroke, *IEEE Robotics and Automation Letters*, vol. 5:3, pp. 3899 - 3906. *Authors equal contribution.
3. **Proietti T.**, Guigon E., Roby-Brami A., Jarrassé N. (2017) Modifying upper-limb inter-joint coordination in healthy subjects by training with a robotic exoskeleton, *Journal of NeuroEngineering and Rehabilitation*, vol. 14. pp. 55.
2. **Proietti T.**, Crocher V., Roby-Brami A., Jarrassé N. (2016) Upper-limb robotic exoskeletons for neurorehabilitation: a review on control strategies, *IEEE Reviews in Biomedical Engineering*, vol. 9, pp. 4-14.
1. Jarrassé N., **Proietti T.**, Crocher V., Robertson J., Sahbani A., Morel G., Roby-Brami A. (2014) Robotic exoskeletons: a perspective for the rehabilitation of arm coordination in stroke patients, *Frontiers in Human Neuroscience*, vol. 8:947, pp. 1-10.

Conference Papers

4. **Proietti T.**, Parry R., Lejeune F., Roby-Brami A., Jarrassé N. (2018) Adaptation of upper limb movement using exoskeleton-based training and transfer of cinematic patterns to unconstrained movement: A preliminary study, *Annals of Physical and Rehabilitation Medicine*, vol. 61, pp 488, 12th World Congress of the International Society of Physical and Rehabilitation Medicine (Paris, France).
3. **Proietti T.**, Roby-Brami A., Jarrassé N. (2017) Comparison of different error signals driving the adaptation in assist-as-needed controllers for neurorehabilitation with an upper-limb robotic exoskeleton, *IEEE International Conference on Robotics and Automation* (ICRA17, Singapore), pp. 6645-6650.
2. **Proietti T.**, Roby-Brami A., Jarrassé N. (2016) Learning motor coordination under resistive viscous force fields at the joint level with an upper-limb robotic exoskeleton, *3rd International Conference on NeuroRehabilitation* (ICNR16, Segovia, Spain), in Converging Clinical and Engineering Research on Neurorehabilitation II, pp. 1175-1179, Springer International Publishing.
1. **Proietti T.**, Jarrassé N., Roby-Brami A., Morel G. (2015) Adaptive control of a robotic exoskeleton for neurorehabilitation, *7th International IEEE/EMBS Conference on Neural Engineering* (NER15, Montpellier, France), pp. 803-806.

Under Review

3. O'Neill C., Young H., Hohimer C., **Proietti T.**, Rastgaar M., Artemiadis P., Walsh C. (2021) Tunable, Textile-based Joint Impedance Module for Soft Robotic Applications, *Soft Robotics*, under review
2. Chu X., Lo C., **Proietti T.**, Walsh C., Au S. (2021) Opposite Treatment on Null Space: a Unified Control Framework for a Class of Underactuated Robotic Systems with Null Space Avoidance, *IEEE Transactions on Control Systems Technology*, under review
1. **Proietti T.**, O'Neill C., Gerez L., Cole T., Mendelowitz S., Nuckols K., Hohimer C., Paganoni S., Walsh C. (2021) Restoring arm function for individuals with amyotrophic lateral sclerosis (ALS) with a soft wearable robot , *Nature*, under review.

Teaching & Mentoring

Undergraduate/Graduate Students Mentoring *Harvard University* **2019 - ongoing**

Course: Robotics Projects (BS/MS/Ph.D. in Material Science and Mechanical Engineering)
Responsibilities: Helped in defining and developing research projects, supervised and assisted students working on their projects in the lab. Provided students with necessary tools and access to facilities to carry our research.
Number of mentored students: 4 undergrads, 6 grads.

Guest Lecturer *Harvard University* **2020**

Course: Physiological Foundations for Bioengineering (BS in Biomedical Engineering)

Teaching Assistant *Polytech Sorbonne* **2015**

Course: Mobile Robotics (MS in Robotics Engineering)
Responsibilities: Prepared, supervised, and assisted 15 graduate students in weekly 6-hour lab course. Participation in final evaluation. The course was provided in French.

Grants & Prizes

Cullen Eduction and Research Fund (CERF) Medical Prize - Co-Writer **2021**

Goal: promote research into aspects of muscle atrophy and loss of functionality associated with motor neuron disease / amyotrophic lateral sclerosis (MND/ALS).
Value: EUR 1.000.000
Status: Finalist - Under Review

Honors & Awards

IEEE Engineering in Medicine and Biology Prize Paper Award - 3rd place with [J2] paper - USD 300. **2019**

Personal Skills

Languages

Italian: Mother Tongue | **English**: Fluent - C2 | **French**: Proficient - B2/C1

</> Computer skills

Programming: Matlab/Simulink, C, C++, Python, Java, HTML, CSS, PHP, MySQL
Software: Solidworks/Fusion360, Qt, Qualisys Track Manager, Visual3D, Unity3D, ROS, INCA, Git, LaTeX
OSs: Linux, Windows

Certifications

2021 - Science Education Undergraduate Mentoring Workshop *from* Harvard University
2019 - Green Belt of Design For Six-Sigma *from* General Motors
2014 - “European Computational Motor Control” Summer School *from* Université de Montpellier 1

Curriculum Vitae

Posizione Attuale

Dal 12/2017 — **Assistant Professor** presso il Department of Electrical Engineering, University of Rhode Island, Kingston, RI, USA.

Posizioni Precedenti

8/2017 - 12/2017 — **Postdoctoral Fellow** pressi il Department of Electrical Engineering, University of Rhode Island, Kingston, RI, USA.

9/12/2016-8/19/2017 — **Postdoctoral Fellow** presso il Department of Ocean Engineering, University of Rhode Island, Narragansett, RI, USA.

1/2014-6/2016 — **Project Leader** del gruppo *Autonomous Robotics and Human-Machine Systems* presso il Department of Human Perception Cognition and Action (Dept. Head: Heinrich H. Bülthoff), Max Planck Institute for Biological Cybernetics, Tübingen, Germany

7/2013-6/2016 — **Research Scientist** nel gruppo *Autonomous Robotics and Human-Machine Systems* presso il Max Plank Institute for Biological Cybernetics, Tübingen, Germany

5/2012 – 4/2013 — **Assegno di ricerca** presso il Dipartimento di Ingegneria Informatica, Automatica e Gestionale, Sapienza Università di Roma

Educazione

11/2008 – 4/2012 — **Dottorato in Ingegneria dei Sistemi** (advisor: Prof. G. Oriolo) presso il Dipartimento di Ingegneria Informatica, Automatica e Gestionale, Sapienza Università di Roma
Tesi: Mutual localization from anonymous measurements in multi-robot systems
Scuole estive:
– SIDRA PhD school 2010 Robotica, Bertinoro (FC), luglio 2010
– SIDRA PhD school 2009 Lyapunov techniques for robust and constrained control of dynamic systems, Bertinoro (FC), luglio 2009
– 3rd WIDE PhD School on Networked Control System, Siena, luglio 2009

9/2010 – 4/2011 — **Visiting Scholar** (advisor: Prof. Stergios Roumeliotis) presso il Department of Computer Science and Engineering, University of Minnesota, Minneapolis, MN, USA.

2/2005 – 9/2008 — **Laurea Specialistica in Ingegneria Elettronica** (indirizzo automazione e robotica) presso la Sapienza Università di Roma - voto 110/110 cum laude
Tesi: A method for mutual localization in a multi-robot system with distance and bearing anonymous measurements: design and experimentation on Khepera III robots (advisor: Prof. G. Oriolo)

9/2001 – 2/2005 — **Laurea Triennale in Ingegneria Elettronica** presso la Sapienza Università di Roma – voto 110/110 (advisor: Prof. D. Caputo)

Interessi di Ricerca

Mobile robotics
Aerial robotics
Multi-robot systems
Sensing and scene interpretation
Human-Robot interaction

Insegnamento

Alla University of Rhode Island
- Fall 2021 – ELE 456: Foundations of Robotics – 2 sezioni (61 studenti)
- Spring 2021 – ELE 594: Special Problems: Probabilistic Robotics (11 studenti)
- Spring 2021 – ELE 602: ELE Graduate Seminar (8 studenti)
- Fall 2020 – ELE 456: Foundations of Robotics – 2 sezioni (49 studenti)
- Spring 2020 – ELE 456: Foundations of Robotics (~25 studenti)
- Fall 2019 – ELE 456: Foundations of Robotics (~25 studenti)
- Spring 2019 – ELE 594: Special Problems: Software for Robotics (~10 studenti)
- Fall 2018 – ELE 456: Foundations of Robotics (~20 studenti)
- Spring 2018 – ELE 502: Nonlinear Control Systems (~10 studenti)
- Fall 2017 – BME 461: Physiological Modeling and Control (~30 studenti)

Al DIAG, Sapienza
- Multi-robot mobile robotics, as part of the course of Elective in Robotics 2009/2010

Università di Roma	• Multi-robot localization, as part of the course of Elective in Robotics 2011/2012 • Multi-robot localization, as part of the course of Elective in Robotics 2012/2013
Student Supervision	
Alla University of Rhode Island	• Kent Altobelli, M.S. in Electrical Engineering, 2021-2023 expected, Major Professor • Stefan Tauchnitz, M.S. in Electrical Engineering, 1-12/2021 expected, Major Professor • Janis Kinzinger, M.S. in Mechanical Engineering, 1-7/2021, co-Major Professor • Matthew Little, M.S. in Electrical Engineering, 2021-4/2021, Major Professor • Andrew Phillips, M.S. in Electrical Engineering, 2020-2022 expected, Major Professor • Thivanka Perera, M.S. and Ph.D. in Electrical Engineering, 2019-2023 expected, Major Professor • Sarah Brent, Ph.D. in Electrical Engineering, 2/2018-2021 expected, Major Professor • Xiaotian Chen, M.S. in Electrical Engineering, 6/2018-2020, Major Professor
Al Max Plank Institute for Biological Cybernetics	• Marcin Odelga, Ph.D. in Computer Science, 2018, Scientific Advisor • Sujit Rajappa, Ph.D. in Computer Science, 2017, Scientific Advisor • Eugen Ruff, M.S. in Computer Science, 2015, Scientific Advisor • Massimo Basile, M.S. in Electrical Engineering, 2013, Scientific co-Advisor
Al DIAG, Sapienza Università di Roma	• Marco Cognetti, M.S. in Automation and Robotics, 2012, Scientific co-Advisor • Mauro Pagliarella, M.S. in Electrical Engineering, 2013, Scientific co-Advisor • Fabio Ceraso, M.S. in Electrical Engineering, 2011, Scientific co-Advisor • Marco Barbalinardo, M.S. in Electrical Engineering, 2009, Scientific co-Advisor
Servizio Professionale	
Technical Committee	• Intelligent Robotics and Multi-Agent Systems (IRMAS) track of the ACM Symposium on Applied Computing (SAC), 2015-2022 • Member, International Symposium on Distributed Autonomous Robotic Systems (DARS), 2016-2022 • 2019 SmartSys • 2020 ICCD
Invited Panel	• Panelist, National Science Foundation, 2018
Editorial Work	• Associate Editor, IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), 2014-2019 • Associate Editor, IEEE Int. Conf. on Robotics and Automation (ICRA), 2021-2022
Journal Reviewer	• IEEE Transactions on Robotics • IEEE Transactions on Automatic Controls • IEEE Robotics and Automation Magazine • IEEE Transactions on Control Systems Technology • IEEE Robotics and Automation Letters • IEEE Transactions on Human-Machine Systems • Swarm Intelligence • International Journal of Robotics Research • Communications in Nonlinear Science and Numerical Simulation • Robotics and Autonomous Systems • International Journal of Robust and Nonlinear Control • Control Engineering Practice • ROBOTICA • Autonomous Robots • Journal of Aerospace Engineering • International Journal of Systems Science • Sensors
Conference Reviewer	• IEEE ICRA 2010-2021 • IEEE/RSJ IROS 2011-2021 • 2014 IFAC World Congress • 2nd IFAC RED-UAS Workshop • 2nd IFAC MVS Workshop • 10th IFAC SYROCO • 7th IFAC IAV Symposium

- 2018 Chinese Control Conference
- 2019 CASE

Membership Professionali
- IEEE and RAS (Robotics and Automation Society) 2009-present
- CSS (Control System Society) 2018-present

Progetti di Ricerca

- 9/2019, NSF EPSCoR RII Track-2 FEC, “Computational methods and autonomous robotics systems for modeling and predicting harmful cyanobacterial blooms”, **$945,360**, 4 years, PI: P. Stegagno, co-PI: Stephen Licht, Christopher Roman
- 7/2019, The Nature Conservancy, “Unmanned Aerial Systems for Characterization of Dune Morphology”, **$15,350**, 1 year, PI: Stephen Licht, co-PI: Chris Baxter, Paolo Stegagno
- 2020, NSF DCSD, “Towards Computationally Efficient One-Shot Design for Performance-Critical Distributed Multi-Agent Control”, **$413,188**, 3 years, PI: C. Yuan, co-PI: P. Stegagno
- 6/2020, Internal Research Office Award, “A Distributed Bayesian Framework for Classification tasks in Robotic Swarms”, **$24,994**, 1 year, PI: P. Stegagno
- 11/2020, Champlin Foundation, Acquire Robotic Equipment for Field- Oriented Robotic Education (FORE) at URI, **$130,000**, PI: M. Zhou, co-PIs: C. Roman, C. Yuan, S. Licht, P. Stegagno

Pubblicazioni

Articoli a giornale
- C. Masone, P. Stegagno, *Shared Control of an Aerial Cooperative Transportation System with a Cable-suspended Payload*, Journal of Intelligent & Robotic Systems, 103, 40 (2021), Oct 2021, doi: https://doi.org/10.1007/s10846-021-01457-4.
- C. Yuan, P. Stegagno, H. He, W. Ren, *Cooperative adaptive containment control with parameter convergence via cooperative finite-time excitation*, IEEE Transactions on Automatic Control, Feb. 2021, doi: 10.1109/TAC.2021.3056336.
- J. Zhang, C. Yuan, W. Zeng, P. Stegagno, C. Wang, *Fault detection of a class of nonlinear uncertain parabolic PDE systems*, IEEE Control Systems Letter, vol. 5, no. 4, pp. 1459-1464, Oct. 2021, doi: 10.1109/LCSYS.2020.3040132. (paper also presented in 2021 American Control Conference)
- J. Zhang, C. Yuan, P. Stegagno, H. He, C. Wang, *Small fault detection of discrete-time nonlinear uncertain systems*, IEEE Transactions on Cybernetics, 51 (2), 2021, pp. 750-764 doi: 10.1109/TCYB.2019.2945629.
- X. Dong, P. Stegagno, C. Yuan*, W. Zeng, *Cooperative adaptive learning control for a group of nonholonomic UGVs by output feedback*, arXiv: 2002.10059 [eess.SY], Feb. 2020. (preprint)
- J. Zhang, C. Yuan, C. Wang, P. Stegagno, W. Zeng, *Composite adaptive NN learning and control for discrete-time nonlinear uncertain systems in normal form*, Neurocomputing, 390, 2020, pp. 168–184.
- J. Zhang, C. Yuan, P. Stegagno, H. He, C.Wang, *Small fault detection of discrete-time nonlinear uncertain systems*, IEEE Transactions on Cybernetics, 2019, accepted.
- J. Zhang, C. Yuan, P. Stegagno, W. Zeng, C. Wang, *Small fault detection from discrete-time closed-loop control using fault dynamics residuals*, Neurocomputing, Jul. 2019.
- X. Dong, C. Yuan, P. Stegagno, W. Zeng, C. Wang, *Composite cooperative synchronization and decentralized learning of multi-robot manipulators with heterogeneous nonlinear uncertain dynamics*, Journal of The Franklin Institute, May 2019.
- P. Stegagno, C. Yuan, *Distributed cooperative adaptive state estimation and system identification for multi-agent systems*, IET Control Theory & Applications, Feb. 2019.
- A. Dargazany, K. Mankodiya, and P. Stegagno, *WearableDL: Wearable Internet of Things and Deep Learning for Big Data Analytics - Concept, Literature, and Future*, Mobile Information Systems, Nov. 2018.
- Y. Liu, S. Rajappa, J. M. Montenbruck, P. Stegagno, H. H. Bülthoff, F. Allgower, and A. Zell, *Robust Nonlinear Control Approach to Nontrivial Maneuvers and Obstacle Avoidance for Quadrotor UAV under Disturbances*, Robotics and Autonomous Systems, vol. 98, pp. 317-332, Dec 2017.
- S. Rajappa, H. H. Bülthoff and P. Stegagno, *Design and Implementation of a Novel Architecture for Human-UAV Physical Interaction*, International Journal of Robotics Research, vol. 36, issue 5-7, pp. 800-819, May 2017.
- P. Stegagno, M. Cognetti, G. Oriolo, H. H. Bülthoff and A. Franchi, *Ground and Aerial Mutual Localization using Anonymous Relative-Bearing Measurements*, IEEE Transactions on Robotics, vol. 32, no. 5, pp. 1133-1151, Oct. 2016.

- A. Franchi, P. Stegagno and G. Oriolo, *Decentralized Multi-Robot Encirclement of a 3D Target with Guaranteed Collision Avoidance*, Autonomous Robots, July 2015.
- A. Franchi, G. Oriolo and P. Stegagno, *Mutual Localization in Multi-Robot Systems using Ano-nymous Relative Measurements*, International Journal of Robotics Research, vol. 32, issue 11, pp. 1303-1322, Sept 2013.

Conferenze internazionali

- J. Zhang, Y. Gu, P. Stegagno, W. Zeng, C. Yuan, *Adaptive NN-based reference-tracking control of uncertain nonlinear parabolic PDE systems*, 2021 IEEE Conference on Decision and Control, Austin, TX, Dec. 2021.
- R. A. T. Perera, C. Yuan, P. Stegagno, *A PHD filter based localization system for robotic swarms*, The 15th International Symposium on Distributed Autonomous Robotic Systems 2021 and The 4th International Symposium on Swarm Behavior and Bio-Inspired Robotics 2021 (DARS-SWARM), Kyoto, Japan, Jun. 2021. (Finalist Best Student Paper Award)
- S. Brent, C. Yuan, P. Stegagno, *Swarm localization through cooperative landmark identification*, The 15th International Symposium on Distributed Autonomous Robotic Systems 2021 and The 4th International Symposium on Swarm Behavior and Bio-Inspired Robotics 2021 (DARS-SWARM), Kyoto, Japan, Jun. 2021.
- X. Chen, P. Stegagno, C. Yuan, *A cable-driven switching-legged inchworm soft robot: design and testing*, American Control Conference, New Orleans, Louisiana, USA, May 2021.
- S. Brent, C. Yuan, P. Stegagno, *Cooperative place recognition in robotic swarms*, ACM/SIGAPP Symposium on Applied Computing, Gwangju, South Korea, Mar. 2021.
- J. Zhang, C. Yuan*, P. Stegagno, *A novel intelligent learning control scheme for discrete-time nonlinear uncertain systems in multiple environments*, ASEM Dynamic Systems and Control Conference, Pittsburgh, Pennsylvania, Oct. 2020.
- X. Chen, P. Stegagno, C. Yuan*, *Deterministic learning with probabilistic analysis on human-robot shared control*, IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), Boston, Jul. 2020.
- X. Dong, X. Chen, C. Yuan*, P. Stegagno, *New results on cooperative multi-vehicle deterministic learning control: design and validation in Gazebo simulation*, IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), Boston, Jul. 2020.
- C. Yuan*, Y. Gu, W. Zeng, P. Stegagno, *Switching model predictive control of switched linear systems with average dwell time*, American Control Conference, Denver, CO, Jul. 2020.
- J. Zhang, C. Yuan*, P. Stegagno, *Similar fault isolation of discrete-time nonlinear uncertain systems*, American Control Conference, Denver, CO, Jul. 2020.
- X. Chen, X. Dong, P. Stegagno, C. Yuan, *Kinect-based human gait recognition using a novel adaptive dynamics learning approach*, ASME Dynamic Systems and Control Conference, Park City, Utah, Oct. 2019.
- J. Zhang, C. Yuan, P. Stegagno, *Adaptive dynamics learning for small fault detection of discrete-time nonlinear uncertain systems*, ASME Dynamic Systems and Control Conference, Park City, Utah, Oct. 2019.
- J. Zhang, C. Yuan, P. Stegagno, *Adaptive NN learning control of discrete-time nonlinear uncertain systems*, ASME Dynamic Systems and Control Conference, Park City, Utah, Oct. 2019.
- C. Yuan, W. Zeng, P. Stegagno, *Cooperative exact state estimation of linear multi-agent systems with heterogeneous bounded disturbances*, Chinese Control Conference, Guangzhou, China, Jul. 2019.
- X. Chen, X. Dong, W. Zeng, C. Yuan, P. Stegagno, *UGV direction control by human arm gesture recognition via deterministic learning*, Chinese Control Conference, Guangzhou, China, Jul. 2019.
- B. Maggi, C. Baxter, A. Grilli, S. Licht, P. Stegagno, A. Bradshaw, and N. Al Naser, *Field Performance of Reinforced Dunes for Improving Coastal Resilience*, Geo-Congress 2019: The Eighth International Conference on Case Histories in Geotechnical Engineering,
- C. Yuan, M. Abdelatti, X. Dong, W. Zeng, P. Stegagno, C. Duan, *Cooperative deterministic learning control of multi-robot manipulators*, Proceedings of Chinese Control Conference, Wuhan, China, 2018.
- M. Odelga, P. Stegagno, N. Kochanek and H. H. Bülthoff, *A Self-contained Teleoperated Quadrotor: On-Board State-Estimation and Indoor Obstacle Avoidance*, 2018 IEEE International Conference on Robotics and Automation (ICRA), Brisbane, Australia, 2018, pp. 7840-7847.
- S. Rajappa, H. H. Bülthoff, M. Odelga, and P. Stegagno, A Control Architecture for Physical

Human-UAV Interaction with a Fully Actuated Hexarotor, 2017 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Vancouver, Canada, Oct 2017.
- P. Stegagno, and S. Licht, Automatic Shore Following for Algae Monitoring with an Unmanned Aerial Vehicle, International Symposium on Aerial Robotics, Philadelphia, PN, USA, June 2017.
- C. Masone, H. H. Bülthoff, and P. Stegagno, Cooperative Transportation of a Payload using Quadrotors: a Reconfigurable Cable-Driven Parallel Robot, 2016 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Daejeon, Korea, Oct 2016.
- M. Odelga, P. Stegagno, and H. H. Bülthoff, A Fully Actuated Quadrotor UAV with a Propeller Tilting Mechanism: Modeling and Control, 2016 IEEE Int. Conf. on Advanced Intelligent Mechatronics, Banff, Canada, July 2016.
- M. Odelga, P. Stegagno, and H. H. Bülthoff, Obstacle Detection, Tracking and Avoidance for a Teleoperated UAV, 2016 IEEE Int. Conf. on Robotics and Automation, Stockholm, Sweden, May 2016.
- S. Rajappa, C. Masone, H. H. Bülthoff and P. Stegagno, Adaptive Super Twisting Controller for a Quadrotor UAV, 2016 IEEE Int. Conf. on Robotics and Automation, Stockholm, Sweden, May 2016.
- M. Odelga, P. Stegagno, H. H. Bülthoff and A. Ahmad, A Setup for Multi-UAV Hardware-in-the-Loop Simulations, 3rd RED-UAS 2015: Workshop on Research, Education and Development of Unmanned Aerial Systems, Cancun, Mexico, Nov. 2015.
- Y. Liu, J. M. Montenbruck, P. Stegagno, F. Allgöwer and A. Zell, A Robust Nonlinear Controller for Nontrivial Quadrotor Maneuvers: Approach and Verification, 2015 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Hamburg, Germany, Sept. 2015.
- C. Massidda, H. H. Bülthoff and P. Stegagno, *Autonomous Vegetation Identification for Outdoor Aerial Navigation*, 2015 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Hamburg, Germany, Sept. 2015.
- P. Stegagno, C. Massidda and H. H. Bülthoff, *Distributed Target Identification in Robotic Swarms*, 30th ACM/SIGAPP Symposium On Applied Computing, Salamanca, Spain, Apr. 2015.
- M. Cognetti, G. Oriolo, P. Peliti, L. Rosa and P. Stegagno, *Cooperative Control of a Heterogeneous Multi-Robot System based on Relative Localization*, 2014 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, pp. 350-356, Chicago, IL, USA, Sept. 2014.
- P. Stegagno, M. Basile, H. H. Bülthoff and A. Franchi, *A Semi-autonomous UAV Platform for Indoor Remote Operation with Visual and Haptic Feedback*, 2014 IEEE Int. Conf. on Robotics and Automation, pp. 3862-3869, Hong Kong, China, June 2014.
- P. Stegagno, M. Basile, H. H. Bülthoff and A. Franchi, *Vision-based Autonomous Control of a Quadrotor UAV using an Onboard RGB-D Camera and its Application to Haptic Teleoperation*, 2nd RED-UAS 2013: Workshop on Research, Education and Development of Unmanned Aerial Systems, Compiegne, France, Nov. 2013.
- P. Stegagno, M. Cognetti, L. Rosa, P. Peliti and G. Oriolo, *Relative Localization and Identification in a Heterogeneous Multi-Robot System*, 2013 IEEE Int. Conf. on Robotics and Automation, Karlsruhe, Germany, May 2013.
- M. Cognetti, P. Stegagno, A. Franchi and G. Oriolo, *Two Measurement Scenarios for Anony-mous Mutual Localization in Multi-UAV Systems*, 2nd IFAC Workshop on Multivehicle Systems, Espoo, Finland, Oct. 2012.
- M. Cognetti, P. Stegagno, A. Franchi, G. Oriolo, and H. H. Bülthoff, *3-D Mutual Localization with Anonymous Bearing Measurements*, 2012 IEEE Int. Conf. on Robotics and Automation, St. Paul, MN, May 2012.
- P. Stegagno, M. Cognetti, A. Franchi, and G. Oriolo, *Mutual Localization using Anonymous Bearing Measurements*, 2011 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, pp. 469-474, San Francisco, CA, Sept. 2011.
- A. Franchi, G. Oriolo, and P. Stegagno, *Probabilistic mutual localization in multi-agent systems from anonymous position measures*, 2010 IEEE Conf. on Decision and Control, pp. 6534-6540, Atlanta, GA, USA, Dec. 2010.
- A. Franchi, P. Stegagno, M. D. Rocco, and G. Oriolo, *Distributed target localization and encircling with a multi-robot system*, 7th IFAC Symposium on Intelligent Autonomous Vehicles, Lecce, Italy, Sep 2010.
- A. Franchi, G. Oriolo, and P. Stegagno, *On the solvability of the mutual localization problem with anonymous position measures*, 2010 IEEE Int. Conf. on Robotics and Automation, pp. 3193-3199, Anchorage, AK, USA, May 2010.
- A. Franchi, G. Oriolo, and P. Stegagno, *Mutual localization in a multi-robot system with*

anony-mous relative position measures, 2009 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, pp. 3974-3980, St. Louis, MO, USA, Oct. 2009.

Capitoli

- X. Dong, P. Stegagno, C. Yuan, and W. Zeng, *Cooperative Adaptive Learning Control for A Group of Nonholonomic UGVs by Output Feedback*, Book Title: MULTI-AGENT SYSTEMS - THEORY AND APPLICATIONS, ISBN 978-1-78984-489-4, Ed. Prof. Ricardo Lopez-Ruiz, 2020.

Posters/ Extended abstracts

- Kathryn L. Cottingham, Kathleen C. Weathers, Alberto Quattrini Li, David A. Lutz, Mary E. Lofton, Jennifer A. Brentrup, Shannon L. LaDeau, Bethel Steele, Holly A. Ewing, Cayelan C. Carey, Annie Bourbonnais, Denise A. Bruesewitz, Michael C. Dietze, Mark J. Ducey, Kenneth M. Johnson, Michael W. Palace, Ioannis Rekleitis, Paolo Stegagno, Devin J. Balkcom, Whitney S. Beck, Ruchi Bhattacharya, Ludmila S. Brightenti, Sarah H. Burnet, Barbara D. Cook, Christina Herrick, Mingi Jeong, Kizito Masaba, Ian M. McCullough, Christopher N. Roman, Monika Roznere, Hannah J. Rubin, V.S. Subramahnian, Franklin Sullivan and Jacob A Zwart, *Predicting cyanobacterial blooms in freshwater lakes: the promise of new partners, tools and technologies,* Ecological Society of America (ESA) Annual Meeting, Aug 2019.
- Alberto Quattrini Li, Holly Ewing, Annie Bourbonnais, Paolo Stegagno, Ioannis Rekleitis, Denise Bruesewitz, Kathryn Cottingham, Devin Balkcom, Mark Ducey, Kenneth Johnson, Stephen Licht, David Lutz, Jason O'Kane, Michael Palace, Christopher Roman, V. S. Subrahmanian, Kathleen Weathers, *Computational methods and autonomous robotics systems for modeling and predicting harmful cyanobacterial blooms,* in Informed Scientific Sampling in Large-scale Outdoor Environments Workshop, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2019
- M. Odelga, P. Stegagno, N. Kochanek, H.H. Bülthoff, *Indoor Quadrotor Teleoperation: On-Board State-Estimation and Obstacle Avoidance,* IEEE/RSJ IROS 2017 Int. Workshop, Vancouver, Canada, Oct 2017.
- P. Stegagno, C. Massidda and H. H. Bülthoff, *Object Recognition in Swarm Systems: Preliminary Results*, IEEE ICRA'14 Int. Workshop on the Centrality of Decentralization in Multi-Robot Systems: Holy Grail or False Idol?, Hong Kong, China, June 2014.
- A. Franchi, P. Stegagno, M. Basile and H. H. Bülthoff, *RGB-D based Haptic Teleoperation of UAVs with Onboard Sensors: Development and Preliminary Results*, IEEE/RSJ IROS'13 Int. Workshop on Vision-based Closed-Loop Control and Navigation of Micro Helicopters in GPS-denied Environments, Tokyo, Japan, Nov. 2013.

Personal information

Surname(s) / First name(s)	**Villani Valeria**
Website	

Short bio

Valeria Villani is Assistant Professor at the Department of Sciences and Methods for Engineering of the University of Modena and Reggio Emilia since 2017.
She received her B.Sc. and M.Sc. in Biomedical Engineering from the University Campus Bio-Medico of Rome in 2006 and 2009, respectively, and her Ph.D. in Biomedical Engineering from the University Campus Bio-Medico of Rome in 2013, focusing on biomedical signal processing, with emphasis on ECG signals. She was the recipient of the *Best Paper Award* at ISABEL 2011 and the *Mortara Fellowship* at CinC 2014.
Her research interests focus on the analysis of human factors in human-system interaction and the design of human-centred user interfaces for efficient cooperation between the human and industrial machines or robots. Moreover, she has solid background in biomedical signal processing, which she has been applying to robot control and affective human-robot interaction.
She was the Technical Coordinator of the H2020 European project "Smart and adaptive interfaces for INCLUSIVE work environment" (INCLUSIVE, GA n. 723373). She was also part of the Management Team of the project and coordinated interactions among project partners and with the European Commission, facilitating a smooth progress of project activities. Moreover, she was the Technical Coordinator of the experiment "COllaborative robot aMPLifying and Extending huMAN capabiliTies" (COMPLEMANT), which was part of the H2020 European project "Smart integrated Robotics system for SMEs controlled by Internet of Things based on dynamic manufacturing processes" (HORSE, GA n. 680734).
She is currently Associate Editor for Mechatronics (Elsevier) and has been appointed as Associate Editor for IEEE ICRA since 2018. Moreover, she served as Guest Editor for the Special Issue on Human-Robot Collaboration in Industrial Applications of Mechatronics (Elsevier) in 2018. She is also member of the Program Committee of IFAC HMS 2019 and co-organized the Workshops "WORKMATE 2018: the WORKplace is better with intelligent, collaborative, robot MATEs" at IEEE ICRA 2018 and "Design, Learning, and Control for Safe Human-Robot Collaboration" at IEEE ICAR 2021. She was General Chair for the 12th International Workshop on Human-Friendly Robotics (HFR 2019).
She is Reviewer for the project "Credible & Safe Robot Systems" (CredRoS) funded to JOANNEUM RESEARCH ROBOTICS by the Austrian Ministry for Transport, Innovation and Technology.

Position

Dates	February 2017 – today
Position	**Assistant professor**
Main topics	Human-robot and human-machine interaction; human factors in robotics and automation applications
Institution	*University of Modena e Reggio Emilia*

Teaching

Dates	2019 – today
Course	**Industrial automation**
Program	Master Degree in Computer Engineering
Istitution	*Department of Engineering Sciences and Methods – DISMI (Mantova). University of Modena and Reggio Emilia*
Dates	2018 – 2019
Course	**Control theory**
Program	Bachelor Degree in Manegement Engineering
Istitution	*Department of Engineering Sciences and Methods – DISMI (Reggio Emilia). University of Modena and Reggio Emilia*
Dates	2016 – 2017
Course	**Human-machine interfaces for mechatronic systems**
Program	Master Degree in Mechatronic Engineering
Istitution	*Department of Engineering Sciences and Methods – DISMI (Reggio Emilia). University of Modena and Reggio Emilia*
Dates	2014 – 2016
Course	**Human-machine interface systems**
Program	Secondary Level Master in Adaptive Manufacturing
Istitution	*Department of Engineering Sciences and Methods – DISMI (Reggio Emilia) and Department of Engineering "Enzo Ferrari" – DIEF (Modena). University of Modena and Reggio Emilia*

Education and Previous Academic Experience

Dates	January 2015 – January 2017
Position	**Post–doc research fellow**
Main topics	Design of human-machine interfaces for robotics and automation applications
Institution	*University of Modena e Reggio Emilia*
Dates	April 2013 – January 2015
Position	**Research fellow**
Main topics	Biomedical signal processing, with emphasis on electrocardiogram and RR series
Institution	*University Campus Bio-Medico of Rome*
Dates	January 2010 – April 2013
Certificate or diploma	**PhD in Biomedical Engineering**, (financed with scholarship)
Thesis	A framework for ECG signal processing based on quadratic variation reduction
Main topics	Biomedical signal processing, electrocardiogram, quadratic variation reduction
Institution	*University Campus Bio-Medico of Rome*
Dates	July 2009
Certificate or diploma	Engineering professional degree
Dates	November 2006 – February 2009
Certificate or diploma	**Master's Degree in Biomedical Engineering**

Thesis	Analysis of biomedical images by means of textures modeled as Markov random fields (in Italian: Analisi di immagini biomedicali mediante estrazione di tessiture modellate come campi aleatori markoviani)
Mark	110/110 summa cum laude
Institution	*University Campus Bio-Medico of Rome*
Dates	October 2003 – October 2006
Certificate or diploma	**Bachelor's Degree in Biomedical Engineering**
Thesis	Systems for controlled release of drugs in intracranial cavity: control and sensorization (in Italian: Sistemi per il rilascio controllato di farmaci nella cavità intracranica: aspetti di sensorizzazione e controllo)
Mark	110/110 summa cum laude
Institution	*University Campus Bio-Medico of Rome*

Previous Work Experience

Dates	May 2013 – August 2014
Position	Industrial researcher
Employer	*Echolight, spin-off of the Italian National Council of Research, Lecce, Italy*
Main activities	Analysis of ultrasound images and signals for early detection of osteoporosis
Dates	March 2009 – May 2010
Position	Junior consultant
Employer	*Di Renzo Regulatory Affairs, Rome, Italy*
Main activities	Regulatory affairs for medical devices and drugs manufacturers

Editorial activity

Journals

Date	2018 - today
	Associate Editor for Mechatronics (Elsevier)
Date	2017 - 2018
	Guest Editor for the Special Issue on Human-Robot Collaboration in Industrial Applications of Mechatronics (Elsevier)

Conferences

Date	2018 – today
	Associate Editor for IEEE International Conference on Robotics and Automation (ICRA)
Date	2019
	Member of the Program Committee of the 14th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems (IFAC HMS) 2019

Organization of scientific events

Date	2021
	Co-organizer of the Workshop "Design, Learning, and Control for Safe Human-Robot Collaboration" at IEEE ICAR 2021
Date	2019
	General chair for the 12th International Workshop on Human-Friendly Robotics (HFR 2019)
Date	2018
	Co-organizer of the Workshop "WORKMATE 2018: the WORKplace is better with intelligent, collaborative, robot MATEs" at IEEE ICRA 2018

Invited talks

Date	2021-10-221
	Keynote speaker at ICMI Workshop “Modelling socio-emotional and cognitive processes from multimodal data in the wild”. Talk title: A framework for affect-based natural human-robot interaction
Date	2021-09-07
	Invited seminar at Monash University. Talk title: Anthropocentric framework for intuitive human-robot interaction: MATE systems
Date	2021-05-18
	Invited talk at the workshop “Working side by side with robots: human factors in industrial settings”. Talk title: The INCLUSIVE system: A general framework for adaptive industrial automation
Date	2021-04-22
	Invited seminar for the course “Applied biomechanics” at University Campus Bio-Medico of Rome. Talk title: Anthropocentric framework for intuitive human-robot interaction: MATE systems
Date	2020-03-04
	Invited talk at ERF 2020 workshop “Trusworthy Robotics - Safety, Credibility, Explainability”. Talk title: Anthropocentric framework for intuitive human-robot interaction: MATE systems
Date	2019-02-04
	Invited seminar at CREO Lab of University Campus Bio-Medico of Rome. Talk title: Human-robot collaboration: intuitive interaction and MATE systems
Date	2019-10-11
	Invited seminar at Polytechnique MontrÃ©al. Talk title: Human-robot collaboration: intuitive interaction and MATE systems
Date	2018-09-27
	Invited seminar at JOANNEUM RESEARCH ROBOTICS. Talk title: Human-robot collaboration: intuitive interaction and MATE systems

Memberships of Scientific Societies

Date	2012 - Today
	Member, IEEE
Date	2015 - Today
	Member, IEEE Engineering in Medicine and Biology Society (EMBS)
Date	2017 - Today
	Member, IEEE Robotics and Automation Society (RAS)

National and international projects and collaborations

1. She is reviewer for the project CredRoS - “Credible & Safe Robot Systems” funded to JOANNEUM RESEARCH ROBOTICS by the Austrian Ministry for Transport, Innovation and Technology.
2. She was involved as Scientific Coordinator and Project Manager for the UNIMORE local unit in the EU H2020 INCLUSIVE project (Smart and adaptive interfaces for INCLUSIVE work environment, GA n. 723373). The project involved 12 European partners.
3. She was involved as Project Manager for the UNIMORE local unit in the experiment COMPLEMANT (COllaborative robot aMPLifying and Extending huMAN capabiliTies), which is part of the H2020 European project HORSE (Smart integrated Robotics system for SMEs controlled by Internet of Things based on dynamic manufacturing processes, GA n. 680734). The project involved 4 European partners.

Scientific publications

International journals

[1] Valeria Villani, Lorenzo Sabattini, Giorgia Zanelli, Enrico Callegati, Benjamin Bezzi, Paulina Barańska, Zofia Mockałło, Dorota Żołnierczyk-Zreda, Julia N Czerniak, Verena Nitsch, Alexander Mertens, and Cesare Fantuzzi. A user study for the evaluation of adaptive interaction systems for inclusive industrial workplaces. *IEEE Transactions on Automation Science and Engineering*, 2021

[2] Elisa Prati, Valeria Villani, Fabio Grandi, Margherita Peruzzini, and Lorenzo Sabattini. Use of interaction design methodologies for human-robot collaboration in industrial scenarios. *IEEE Transactions on Automation Science and Engineering*, 2021

[3] Valeria Villani, Lorenzo Sabattini, Paulina Barańska, Enrico Callegati, Julia N. Czerniak, Adel Debbache, Mina Fahimipirehgalin, Andreas Gallasch, Frieder Loch, Rosario Maida, Alexander Mertens, Zofia Mockałło, Francesco Monica, Verena Nitsch, Engin Talas, Elisabetta Toschi, Birgit Vogel-Heuser, Jeanmarc Willems, Dorota Żołnierczyk-Zreda, and Cesare Fantuzzi. The INCLUSIVE system: A general framework for adaptive industrial automation. *IEEE Transactions on Automation Science and Engineering*, 18(4):1969 – 1982, 2021

[4] Valeria Villani, Lorenzo Sabattini, Frieder Loch, Birgit Vogel-Heuser, and Cesare Fantuzzi. A general methodology for adapting industrial HMIs to human operators. *IEEE Trans. Automation Science and Engineering*, 18(1):164 – 175, 2021

[5] Julia N. Czerniak, Nikolas Schierhorst, Valeria Villani, Lorenzo Sabattini, Christopher Brandl, Alexander Mertens, Maximilian Schwalm, and Verena Nitsch. The index of cognitive activity - eligibility for task-evoked informational strain and robustness towards visual influences. *Applied Ergonomics*, 92:1033–1042, 2021

[6] Valeria Villani, Massimiliano Righi, Lorenzo Sabattini, and Cristian Secchi. Wearable devices for the assessment of cognitive effort for human-robot interaction. *IEEE Sensors Journal*, 20(21):13047–13056, 2020

[7] Valeria Villani, Beatrice Capelli, Cristian Secchi, Cesare Fantuzzi, and Lorenzo Sabattini. Humans interacting with multi-robot systems: a natural affect-based approach. *Autonomous Robots*, 44(3):601–616, 2020

[8] Valeria Villani, Julia N. Czerniak, Lorenzo Sabattini, Alexander Mertens, and Cesare Fantuzzi. Measurement and classification of human characteristics and capabilities during interaction tasks. *Paladyn. Journal of Behavioral Robotics*, 10(1):182–192, 2019

[9] Francesco Leali, Fabio Pini, and Valeria Villani. Guest editorial note: Special issue on human-robot collaboration in industrial applications. *Mechatronics*, 58:80–81, 2019

[10] Valeria Villani, Fabio Pini, Francesco Leali, and Cristian Secchi. Survey on human-robot collaboration in industrial settings: Safety, intuitive interfaces and applications. *Mechatronics*, 55:248–266, 2018

[11] Valeria Villani, Lorenzo Sabattini, Julia N. Czerniak, Alexander Mertens, and Cesare Fantuzzi. MATE robots simplifying my work: benefits and socio-ethical implications. *IEEE Robot. Automat. Mag.*, 25(1):37–45, 2018

[12] Chiara Talignani Landi, Valeria Villani, Federica Ferraguti, Lorenzo Sabattini, Cristian Secchi, and Cesare Fantuzzi. Relieving operators' workload: Towards affective robotics in industrial scenarios. *Mechatronics*, 54:144–154, Oct. 2018

[13] Valeria Villani, Lorenzo Sabattini, Giuseppe Riggio, Cristian Secchi, Marco Minelli, and Cesare Fantuzzi. A natural infrastructure-less human-robot interaction system. *IEEE Robot. Automat. Lett.*, 2(3):1640–1647, 2017

[14] Maurizio Muratore, Francesco Conversano, Maria Daniela Renna, Paola Pisani, Valeria Villani, and Sergio Casciaro. Social impact of osteoporotic fractures: Early diagnosis and possible therapies. *Int. J. Measurement Technologies and Instrumentation Engineering (IJMTIE)*, 4(2):39–53, 2014

[15] Antonio Fasano and Valeria Villani. Baseline wander removal for bioelectrical signals by quadratic variation reduction. *Signal Process.*, 99:48–57, 2014

International conferences

[16] Andrea Bettoni, Elias Montini, Massimiliano Righi, Valeria Villani, Radostin Tsvetanov, Stefano Borgia, Cristian Secchi, and Emanuele Carpanzano. Mutualistic and adaptive human-machine collaboration based on machine learning in an injection moulding manufacturing line. *Procedia CIRP*, 93:395–400, 2020

[17] Giulia Lotti, Valeria Villani, Nicola Battilani, and Cesare Fantuzzi. New trends in the design of human-machine interaction for CNC machines. In *14th IFAC/IFIP/IFORS/IEA Symp. Analysis, Design, and Evaluation of Human-Machine Systems (HMS)*, volume 52 of *IFAC-PapersOnLine*, pages 31–36, 2019

[18] Valeria Villani, Giulia Lotti, Nicola Battilani, and Cesare Fantuzzi. Survey on usability assessment for industrial user interfaces. In *14th IFAC/IFIP/IFORS/IEA Symp. Analysis, Design, and Evaluation of Human-Machine Systems (HMS)*, volume 52 of *IFAC-PapersOnLine*, pages 25–30, 2019

[19] Beatrice Capelli, Valeria Villani, Cristian Secchi, and Lorenzo Sabattini. Understanding multi-robot systems: on the concept of legibility. In *Proc. IEEE/RSJ Int. Conf. Intelligent Robots and Systems (IROS)*, pages 7355–7361, 2019

[20] Valeria Villani, Lorenzo Sabattini, Cristian Secchi, and Cesare Fantuzzi. A framework for affect-based natural human-robot interaction. In IEEE, editor, *27th IEEE Int. Symp. Robot and Human Interactive Communication (RO-MAN)*, pages 1038–1044, 2018

[21] Valeria Villani, Beatrice Capelli, and Lorenzo Sabattini. Use of virtual reality for the evaluation of human-robot interaction systems in complex scenarios. In IEEE, editor, *27th IEEE Int. Symp. Robot and Human Interactive Communication (RO-MAN)*, pages 422–427, 2018

[22] Frieder Loch, Julia Czerniak, Valeria Villani, Lorenzo Sabattini, Cesare Fantuzzi, Alexander Mertens, and Birgit Vogel-Heuser. An adaptive speech interface for assistance in maintenance and changeover procedure. In Springer, editor, *Proc. 20th Int. Conf. Human-Computer Interaction (HCI)*, pages 152–163, 2018

[23] Frieder Loch, Mina Fahimipirehgalin, Julia Czerniak, Alexander Mertens, Valeria Villani, Lorenzo Sabattini, Cesare Fantuzzi, and Birgit Vogel-Heuser. An adaptive virtual training system based on universal design. In *Proc. 2nd IFAC Conf. Cyber-Physical and Human-Systems (CPHS)*, volume 51 of *IFAC-PapersOnLine*, pages 335–340, 2018

[24] Valeria Villani, Lorenzo Sabattini, Alessio Levratti, and Cesare Fantuzzi. An industrial social network for sharing knowledge among operators. In *Proc. 16th IFAC Symp. Information Control Problems in Manufacturing (INCOM)*, volume 51 of *IFAC-PapersOnLine*, pages 48–53, 2018

[25] Valeria Villani, Fabio Pini, Francesco Leali, Cristian Secchi, and Cesare Fantuzzi. Survey on human-robot interaction for robot programming in industrial applications. In *Proc. 16th IFAC Symp. Information Control Problems in Manufacturing (INCOM)*, volume 51 of *IFAC-PapersOnLine*, pages 66–71, 2018

[26] Lorenzo Sabattini, Valeria Villani, Julia Czerniak, Frieder Loch, Alexander Mertens, Birgit Vogel-Heuser, and Cesare Fantuzzi. Methodological approach for the evaluation of an adaptive and assistive human-machine system. In *14th IEEE Conf. Automation Science and Engineering (CASE)*, pages 57–62. IEEE, 2018

[27] Julia N Czerniak, Valeria Villani, Lorenzo Sabattini, Frieder Loch, Birgit Vogel-Heuser, Cesare Fantuzzi, Christopher Brandl, and Alexander Mertens. Systematic approach to develop a flexible adaptive human-machine interface in socio-technological systems. In *Congress of the International Ergonomics Association (IEA)*, Advances in Intelligent Systems and Computing, pages 276–288. Springer, Springer, 2018

[28] Giulia Lotti, Valeria Villani, Nicola Battilani, and Cesare Fantuzzi. Towards an integrated approach for supporting the workers in industry 4.0. In *Proc. 1st IEEE Int. Conf. Industrial Cyber-Physical Systems (ICPS)*, pages 609–614. IEEE, 2018

[29] Valeria Villani, Lorenzo Sabattini, Cristian Secchi, and Cesare Fantuzzi. Natural interaction based on affective robotics for multi-robot systems. In *Proc. IEEE International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, pages 56–62. IEEE, dic. 2017

[30] Lorenzo Sabattini, Valeria Villani, Cristian Secchi, and Cesare Fantuzzi. A general approach to natural human-robot interaction. In *Springer Proceedings in Advanced Robotics (SPAR)*, pages 61–71, 2017

[31] Valeria Villani, Lorenzo Sabattini, Giuseppe Riggio, Alessio Levratti, Cristian Secchi, and Cesare Fantuzzi. Interacting with a mobile robot with a natural infrastructure-less interface. In *Proc. IFAC 20th World Congress Int. Federation Autom. Control IFAC*, volume 50 of *IFAC-PapersOnLine*, pages 12753–12758. Elsevier, 2017

[32] Lorenzo Sabattini, Valeria Villani, Julia Czerniak, Alexander Mertens, and Cesare Fantuzzi. Methodological approach for the design of a complex inclusive human-machine system. In *13th IEEE Conf. Automation Science and Engineering (CASE)*, pages 145–150. IEEE, 2017

[33] Valeria Villani, Lorenzo Sabattini, Julia N. Czerniak, Alexander Mertens, Birgit Vogel-Heuser, and Cesare Fantuzzi. Towards modern inclusive factories: A methodology for the development of smart adaptive human-machine interfaces. In *22nd IEEE Int. Conf. Emerging Technologies And Factory Automation (ETFA)*. IEEE, 2017

[34] Antonio Fasano, Sauro Longhi, Andrea Monteriù, and Valeria Villani. A detection-estimation approach with refinement to filtering for gaussian systems with intermittent observations. In *Proc. 55th IEEE Conf. Decision and Control (CDC)*, pages 2035–2040, dec. 2016

[35] Valeria Villani, Nicola Battilani, Giulia Lotti, and Cesare Fantuzzi. MyAID: a troubleshooting application for supporting human operators in industrial environment. In *13th IFAC/IFIP/IFORS/IEA Symp. Analysis, Design, and Evaluation of Human-Machine Systems (HMS)*, volume 49 of *IFAC-PapersOnLine*, pages 391–396, 2016

[36] Valeria Villani, Lorenzo Sabattini, Nicola Battilani, and Cesare Fantuzzi. Smartwatch-enhanced interaction with an advanced troubleshooting system for industrial machines. In *13th IFAC/IFIP/IFORS/IEA Symp. Analysis, Design, and Evaluation of Human-Machine Systems (HMS)*, volume 49, pages 277–282, 2016

[37] Antonio Fasano, Andrea Monteriù, and Valeria Villani. A detection-estimation approach to filtering with intermittent observations with generally correlated packet dropouts. In *Proc. 54th IEEE Conf. Decision and Control (CDC)*, pages 4356–4361. IEEE, dec. 2015

[38] Antonio Fasano and Valeria Villani. ECG baseline wander removal with recovery of the isoelectric level. In *IEEE Comput. Cardiol. (CinC)*, pages 577–580, sep. 2015

[39] Antonio Fasano and Valeria Villani. Fast and effective estimation of narrowband components for bioelectrical signals. In *Proc. 37th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. (EMBC)*, pages 7841–7844. IEEE, aug. 2015

[40] Antonio Fasano and Valeria Villani. Statistical assessment of performance of algorithms for detrending RR series. In *Proc. 37th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. (EMBC)*, pages 3335–3338. IEEE, aug. 2015

[41] Valeria Villani and Antonio Fasano. A framework for ECG signal preprocessing based on quadratic variation reduction. In *IEEE Comput. Cardiol. (CinC)*, volume 41, pages 41–44, sep. 2014

[42] Antonio Fasano and Valeria Villani. ECG baseline wander removal by QVR preserving the ST segment. In *8th Conf. European Study Group on Cardiac Oscillations (ESGCO)*, pages 117–118, may 2014

[43] Valeria Villani, Francesco Conversano, Matteo Aventaggiato, Fernanda Chiriacò, Maurizio Muratore, and Sergio Casciaro. Implementation of a model database for a novel ultrasonic approach to bone evaluation. In *3rd Imeko TC13 Symp. Meas. Biol. Med.*, apr. 2014

[44] Maurizio Muratore, Francesco Conversano, Maria Daniela Renna, Valeria Villani, and Sergio Casciaro. Osteoporotic fractures: Risk estimation, possible therapies and related costs. In *3rd Imeko TC13 Symp. Meas. Biol. Med.*, Lecce, IT, apr. 2014

[45] Antonio Fasano and Valeria Villani. Baseline wander removal in ECG and AHA recommendations. In *IEEE Comput. Cardiol. (CinC)*, volume 40, pages 1167–1170, sep. 2013

[46] Antonio Fasano and Valeria Villani. ECG baseline wander removal and impact on beats morphology: A comparative analysis. In *IEEE Comput. Cardiol. (CinC)*, volume 40, pages 1171–1174, sep. 2013

[47] Valeria Villani and Antonio Fasano. Fast detrending of unevenly sampled series with application to HRV. In *IEEE Comput. Cardiol. (CinC)*, volume 40, pages 417–420, sep. 2013

[48] Antonio Fasano and Valeria Villani. Joint denoising and narrowband artifact rejection for ECG signals. In *IEEE Comput. Cardiol. (CinC)*, volume 39, pages 49–52, sep. 2012

[49] Antonio Fasano, Valeria Villani, and Luca Vollero. ECG smoothing and denoising by local quadratic variation reduction. In *Proc. 4th Int. Symp. Appl. Sci. Biomed. Commun. Tech. (ISABEL)*, oct. 2011

[50] Antonio Fasano, Valeria Villani, and Luca Vollero. Fast ECG baseline wander removal preserving the ST segment. In *Proc. 4th Int. Symp. Appl. Sci. Biomed. Commun. Tech. (ISABEL)*, oct. 2011

[51] Antonio Fasano, Valeria Villani, and Luca Vollero. Baseline wander estimation and removal by quadratic variation reduction. In *Proc. 33rd Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. (EMBC)*, pages 977–980. IEEE, aug.-sep. 2011

[52] Antonio Fasano, Valeria Villani, and Luca Vollero. Denoising and harmonic artifacts rejection for ECG P-waves by quadratic variation reduction. In *Proc. 33rd Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. (EMBC)*, pages 981–984. IEEE, aug.-sep. 2011

[53] Antonio Fasano, Valeria Villani, Luca Vollero, and Federica Censi. ECG P-wave smoothing and denoising by quadratic variation reduction. In *Proc. 4th Int. Conf. Bio-Inspired Syst. Signal Process. (BIOSIGNAL)*, pages 289–294, jan. 2011

[54] Valeria Villani, Antonio Fasano, Luca Vollero, Federica Censi, and Giuseppe Boriani. Measuring P-wave morphological variability for AF-prone patients identification. In *Proc. 4th Int. Conf. Bio-Inspired Syst. Signal Process. (BIOSIGNAL)*, pages 481–484, jan. 2011

Books editor

[55] Federica Ferraguti, Valeria Villani, Lorenzo Sabattini, and Marcello Bonfè, editors. *Human-Friendly Robotics 2019. HFR 2019*, volume 12 of *Springer Proceedings in Advanced Robotics*. Springer, Cham, 2020

Italian conferences

[56] Antonio Fasano and Valeria Villani. Fast estimation of narrowband components for ECG signals. In *Quarto Congresso del Gruppo Nazionale di Bioingegneria (GNB)*, jun. 2014

[57] Antonio Fasano and Valeria Villani. Fast detrending of RR series for HRV analysis. In *Quarto Congresso del Gruppo Nazionale di Bioingegneria (GNB)*, jun. 2014

[58] Antonio Fasano, Valeria Villani, and Giulio Iannello. Fast and effective baseline wander estimation and removal. In *Terzo Congresso del Gruppo Nazionale di Bioingegneria (GNB)*, jun. 2012

[59] Antonio Fasano, Valeria Villani, and Giulio Iannello. ECG denoising and power-line interference rejection by local quadratic variation reduction. In *Terzo Congresso del Gruppo Nazionale di Bioingegneria (GNB)*, jun. 2012

PhD thesis

[60] Valeria Villani. *A framework for ECG signal processing based on quadratic variation reduction*. PhD thesis, Università Campus Bio-Medico di Roma, apr., Rome 2013

Supervised students

She has supervised and co-supervised approximately 40 students for their master and bachelor thesis.

Personal skills and competences

Mother tongue(s) **Italian**

Self-assessment *European level*(*)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user
French	B2 Independent user	B2 Independent user	B2 Independent user	B2 Independent user	B1 Independent user
German	A1 Basic user	A1 Basic user	A1 Basic user	A1 Basic user	A1 Basic user

(*) *Common European Framework of Reference (CEF) level*

Computer skills and competences: Good competences in the field of programming and simulation, developed within the academic research work

Driving license: Italian car driving license

Certificates

Dates: December 2006
Certificate or diploma: Cisco IT Essential II
Institution: *Cisco Networking Academy*

Dates: June 2002
Certificate or diploma: European Computer Driving Licence (ECDL)
Institution: *ECDL Foundation*

Dates: June 2002
Certificate or diploma: Certificate in Advanced English (CAE)
Institution: *University of Cambridge*

Dates: June 2000
Certificate or diploma: First Certificate in English (FCE)
Institution: *University of Cambridge*

Dates: June 1999
Certificate or diploma: Preliminary English Test (PET)
Institution: *University of Cambridge*