

CURRICULUM VITAE

DR. RICCARDO MURADORE

PERSONAL DETAILS

Date of birth: April 27, 1974

Place of birth: Verona, Italy

Citizenship: Italian

Present Position: Assistant Professor (Ricercatore a Tempo Determinato tipo B), Department of Computer Science, University of Verona, Italy.

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EDUCATION

February 21, 2003 Ph.D degree in “Information Engineering and Industrial Electronics”, University of Padova, Italy.

Thesis title: *Robust Control of Systems with Sharp Resonances*.

Advisor: Prof. Giorgio Picci.

November, 1999 Engineering qualifying examination.

April 20, 1999 Laurea degree in Information Engineering, University of Padova, Italy.

Thesis title: *Satellite Attitude Estimation based on Differential GPS*. (in italian)

Advisors: Prof. Giorgio Picci and Prof. Alessandro Caporali.

RESEARCH ACTIVITY

- **Teleoperation & Surgical Robotics:**

Teleoperated surgery has proven its advantages by improving safety, accuracy, reproducibility, and decreasing human fatigue. The next challenging frontier is Autonomous Robotic Surgery, whose aim is to perform simple tasks without the presence (or telepresence) of surgeons. In the EU funded project I-SUR we explored the feasibility of a solution for three surgical procedures: puncturing, cutting and suturing. As an area of strategic interest and high social impact, autonomous robotic surgery requires new methods and models for guaranteeing performance and safety through complex controllers and high level supervisors. In [14] our autonomous system is described in full detail, whereas [12] focuses mainly on the control aspects.

Selected publications: [41], [43], [45], [46], [53], [59], [60].

- **Robotics:**

The research activity focused mainly on fault detection and isolation using statistical methods [17], parameter identification for robotic arms [55] and humanoids [51], and formal verification of tasks. Methodologies from the verification of hybrid systems were adapted and improved for robotic scenarios. In [11],[28], [19] we discussed the implementation of these techniques in surgical tasks.

Recently we worked on series elastic actuators (SEA) and we compared and designed impedance/admittance and compliant controllers for SEAs [8].

Selected publications: [17], [55], [51] [49], [51], [55], [65], [66].

- **Networked Control Systems:**

Networked control systems (NCS) are spatially distributed systems where the plant is connected to the controller by a wired/wireless packet-based network. We developed simulators [10],[18], [27] for accurately verified stability and performance in safety-critical systems; designed controllers integrating predictive control and differentiated service policy [26]; and integrated adaptive buffers to compensate the delay jitter [16].

Recently we started to work on security in NCSs developing a security layer to detect attacks and to interact with the controller to maintain an adequate level of performance [13]. We think that this is an important topic in NCSs and cyber-physical systems where control theory and computer science methods need to be integrated.

Selected publications: [48], [52], [54], [61], [62], [63], [67].

- **Adaptive Optics:**

The core of any ground-based astronomical telescope is the adaptive optics (AO) system. AO allows to obtain diffraction limited images by using deformable mirror(s) to flatten distorted wavefronts in real time. As a control engineer my research focused on the identification on the mathematical model of the system [20], on the performance improvement of the

Very Large Telescope (VLT) class of telescopes by using Kalman filtering [21], and on the rejection of vibrations using adaptive techniques [15].

Selected publications: [43] [40], [44], [47], [56], [57], [58], [64], [68], [69], [70], [71], [72], [73], [74], [75], [76], [77].

- **Process Control:**

The research aims at developing soft sensors for estimating the compositions in batch distillation columns by using multivariate regression techniques (Principal Component Analysis, Partial Least Squares, etc), at optimally locating sensors in chemical reactors [22], at designing MPC controllers [23].

Recently, we worked on the design of multi-phase soft sensors for chemical and biochemical batch processes [42].

Selected publications: [78], [80].

- **Robust Control:**

Robust control addresses the problem of designing controllers that guarantee stability and performance of uncertain plants. I focused mainly on mixed performance, i.e. on designing $\mathcal{H}_2/\mathcal{H}_\infty$ controllers and filters [24]. I also worked on algorithms for trajectory reconstruction that integrate GPS, IMU, odometers and MEMS accelerometers.

Selected publications: [79], [81], [82], [83], [84].

WORKING ACTIVITY

from October 2017 to present
Department of Computer Science
University of Verona, Italy.

Position: Assistant Professor (Ricercatore a Tempo Determinato tipo B)

Research Areas: Robotics, Teleoperation, Networked Control Systems, Adaptive Optics

Teaching: **Advanced Robotics:** The course objective is to give students advanced concepts of robotics and teleoperation (THEORY: bilateral teleoperation, delay compensation algorithms, force feedback, passivity theory. LABORATORY: implementation of the algorithms on a teleoperation test bench).

from December 2012 to September 2017
Department of Computer Science
University of Verona, Italy.

Position: Assistant Professor (Ricercatore a Tempo Determinato tipo A)

from March 2011 to December 2012
Department of Computer Science
University of Verona, Italy.

Position: Research Associate (Assegnista di Ricerca)

Project: European Project *Intelligent Surgical Robotics* (I-SUR, FP7-2007 Grant agreement no: 270396)

Scientific Advisor: Prof. Paolo Fiorini

from March 2009 to February 2011
Department of Computer Science
University of Verona, Italy.

Position: Research Associate (Assegnista di Ricerca)

Project: European Project *CONtrol FOR COORDination of distributed systems* (CON4COORD, FP7-2007- IST-2-223844)

Scientific Advisor: Prof. Tiziano Villa

from June 2008 to February 2009
Department of Computer Science
University of Verona, Italy

Position: Research Associate (Assegnista di Ricerca)

Project: European Project *RoSta. Robot Standards and Reference Architectures* (Project no. 45304)

Scientific Advisor: Prof. Paolo Fiorini

from June 2005 to June 2008
Adaptive Optics Department
European Southern Observatory, Munich, Germany.

Position: Control Engineer

from June 2003 to May 2005
Department of Chemical Engineering Principles and Practice
University of Padova, Italy

Position: Postdoctoral Fellowship (Assegnista di Ricerca)

Project: *Development of virtual composition sensors: theory and experiments*

Scientific Advisor: Prof. Massimiliano Barolo

from 6/2004 to 7/2004
Department of Information Engineering
University of Padova, Italy

Position: Research contract

Project: *Development of algorithms for sensor fusion applications: high accuracy trajectory reconstruction when GPS measurements are not available for long time window*

Scientific Advisor: Prof. Ruggero Frezza

from 1/2000 to 12/2002
Department of Information Engineering
University of Padova, Italy

Position: Ph.D student

Scientific Advisor: Prof. Giorgio Picci

from May 1999 to December 1999

Position: Software Engineer (Borland DELPHI)

RESEARCH PROJECTS

- 2018 Coordinator of the H2020 project SARAS *Smart Autonomous Robotic Assistant Surgeon*, Call: H2020-ICT-2016-2017, Topic: ICT-27-2017, Type of action: RIA.
Budget: **4,2MEUR**; Duration: 01 January 2018–31 December 2020.
- 2017 Member of the UNIVR team of the project *VIA!! Veneto in Alternanza* funded by European Social Fund (Fondo Sociale Europeo). Principal Investigator: Franco Zandomenighi (C.IM. & FORM. SRL).
- 2017 Principal Investigator for the industrial-research project *Development of algorithms for outdoor monitoring using thermal imaging* (Sviluppo di tecnologie basate su immagini termiche per il monitoraggio indoor e outdoor), funded by European Social Fund (Fondo Sociale Europeo).
Budget: **66.76kEUR**; Duration: June 2017–May 2018; 2 temporary research associates hired.
- 2017 Member of the UNIVR team of the project *ICT4SM: ICT for advanced manufacturing industry* (ICT4SM: ICT per l'industria manifatturiera avanzata), funded by European Social Fund (Fondo Sociale Europeo). Principal Investigator: Alessandro Beghi, University of Padova.
Budget: **183,50kEUR**; Duration: June 2017–May 2018.
- 2016 Principal Investigator for the industrial-research project *Development of a high resolution telescope using adaptive optics* (Progettazione di un telescopio con modulo di ottica adattiva ad elevata risoluzione), funded by European Social Fund (Fondo Sociale Europeo).
Budget: **39.70kEUR**; Duration: September 2016–September 2017; 1 temporary research associate hired.
- 2016 Principal Investigator for the industrial-research project *Process optimization for the production of dietary supplements* (Ottimizzazione dei controlli di processo nella produzione di integratori alimentari), funded by European Social Fund (Fondo Sociale Europeo).
Budget: **42.70kEUR**; Duration: September 2016–September 2017; 1 temporary research associate hired.
- 2016 Principal Investigator for the industrial-research project *Development of a low cost 3D measurement system for smart manufacturing* (Sviluppo di un sistema hardware e software a basso costo per misurazione tridimensionale ad alta risoluzione finalizzato al supporto dei processi di controllo e misura digitale per lo smart manufacturing in ambito meccanico), funded by European Social Fund (Fondo Sociale Europeo).

- Budget: **46.00kEUR**; Duration: September 2016–September 2017; 1 temporary research associate hired.
- 2016 Member of the UNIVR team of the project *Professional Education in Service Robotics (PRESER-III): Human-Robot Interaction (HRI)*, Proposal on Creation of Educational Material in Robotics and Automation (CEMRA Projects), funded by the IEEE Robotics and Automation Society (RAS). Proposer: Paolo Fiorini (UNIVR), Budget: **10kUS\$**; Duration: One year.
- 2016 Member of the UNIVR team of the project *Functional mockup Interface extension with support for Discrete Event Languages (FIDEL)*, funded by the UNIVR JOINT PROJECTS 2016. Project manager: Franco Fummi (UNIVR), Budget: **166kEUR**; Duration: Two years.
- 2016 Member of the UNIVR team of the H2020 European Project INTCATCH *Development and application of Novel, Integrated Tools for monitoring and managing Catchments* (Call: H2020-WATER-2015-two-stage, Type of action: IA, Topic: WATER-1b-2015 - Demonstration/pilot activities). Local Coordinator: Prof. Alessandro Farinelli (UNIVR). <http://intcatch.eu>
- 2015 Member of the UNIVR team of the project *Professional Education in Service Robotics (PRESER-II): Mobile manipulation*, Proposal on Creation of Educational Material in Robotics and Automation (CEMRA Projects), funded by the IEEE Robotics and Automation Society (RAS). Proposer: Paolo Fiorini (UNIVR), Budget: **10kUS\$**; Duration: One year.
- 2015 Member of the UNIVR team of the H2020 European project MURAB *MRI and Ultrasound Robotic Assisted Biopsy*, Call: H2020-ICT-2015, Topic: ICT-24-2015, Type of action: RIA, Coordinator: Stefano Stramigioli (University of Twente), Local Coordinator: Paolo Fiorini (UNIVR) <http://www.murabproject.eu/>
- 2014 Member of the UNIVR team of the project *Professional Education in Service Robotics (PRESER)*, Proposal on Creation of Educational Material in Robotics and Automation (CEMRA Projects), funded by the IEEE Robotics and Automation Society (RAS). Proposer: Paolo Fiorini (UNIVR), Budget: **10kUS\$**; Duration: One year.
- 2014 Principal Investigator for the industrial-research project *Development of a system for continuous emulsions* (Sviluppo di un sistema per la realizzazione di emulsioni in continuo), funded by European Social Fund (Fondo Sociale Europeo). Budget: **39.24kEUR**; Duration: March 2014–March 2015; 1 temporary research associate hired.

- 2011-2012 Technical Manager of the FP7 European Project I-SUR *Intelligent Surgical Robotics*, Call: FP7-2007 Grant agreement no: 270396, Type of action: RIA. Coordinator: Prof. Paolo Fiorini (UNIVR). <http://www.isur.eu/isur/>
- 2009-2011 Member of the UNIVR team of the FP7 European Project CON4COORD *CONtrol FOR COORDination of distributed systems*, Call: FP7-2007- IST-2-223844, Type of action: RIA, Coordinator: Prof. Jan Van Schuppen, CWI (Centrum Wiskunde & Informatica), Amsterdam, the Netherland. Local Coordinator: Tiziano Villa (UNIVR).
- 2008-2009 Member of the UNIVR team of the FP6 European Project RoSta *Robot Standards and Reference Architectures*, Coordination Action FP6, Project no. 45304. Local Coordinator: Prof. Paolo Fiorini (UNIVR). <http://www.robot-standards.eu/>

INVITED SPEAKER, WORKSHOP ORGANIZER, PHD SCHOOL ORGANIZER

- 2018 Invited Speaker at the Workshop on *Networking for new trends in surgical robotics*, organized by Sanja Dogramadzi (Bristol Robotic Laboratory), Marta Capiluppi (University of Verona) and Elena De Momi (Politecnico di Milano), at the 9th European Robotics Forum (ERF), Tampere, Finland, 2018
<http://nearlab.polimi.it/news/networking-for-new-trends-in-surgical-robotics/>
- 2017 Organizer with Marta Capiluppi (University of Verona) and Elena De Momi (Politecnico di Milano) of the workshop *Image Guided Robotic Surgery and Interventions*, at the 8th European Robotics Forum (ERF), Edinburgh, Scotland, UK, 2017
<http://nearlab.polimi.it/news/european-robotics-forum-2017/>
- 2016 Co-organizer of the *1st Biannual Summer School on Control of Surgical Robots (COSUR 2016)* for PhD students. Department of Computer Science University of Verona, Italy in collaboration with the IEEE Robotics and Automation Society (RAS) Technical Committee on Robotic Surgery and the European project MURAB (MRI and Ultrasound Robotic Assisted Biopsy). Date: 5-9 September 2016.
<https://metropolis.scienze.univr.it/altair/events/cosur-2016/>
- 2016 Organizer with Marta Capiluppi (University of Verona) and Stefano Stramigioli (University of Twente) of the workshop *Image Guided Robotic Surgery and Interventions*, at the 7th European Robotics Forum (ERF), Ljubljana, Slovenia, 2016
<http://www.erf2016.eu/index.php/schedule/05image-guided-robotic-surgery-and-interventions/>
- 2015 Organizer with Paolo Fiorini (University of Verona) of the *Tutorial on Cognitive Surgical Robotics* at the 17th International Conference on Advanced Robotics, ICAR, Istanbul, Turkey, on July 27-31, 2015.
http://www.icar2015.org/icar2015_workshops_and_tutorials-1.2.24.html
- 2015 Invited Speaker at the Workshop *Cognitive Surgical Robotics*, 8th Hamlyn Symposium on Medical Robotics, London, UK, June 20-23, 2015.
<http://hamlyn.doc.ic.ac.uk/hsmr/cognitive-surgical-robotics>
- 2015 Invited Speaker at the Tutorial *Automotive: Let's kick start electric vehicles!*. Talk title: "Joint controller-communication design in electric vehicles". Design, Automation and Test in Europe (DATE), Grenoble, France, 9-13 March, 2015

2014

Invited Speaker at the Workshop *Cognitive Surgical Robotics*,
Talk title: "Distributed Control Architecture for Automated
Surgery: an Experimental Validation", 7th Hamlyn Sym-
posium on Medical Robotics, London, UK, July 12-15, 2014.
<http://ubimon.doc.ic.ac.uk/Hamlyn2014/m1818.html>

TEACHING ACTIVITIES

Courses

A.A. 2017/2018 Advanced Robotics

Coordinator, 6 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

A.A. 2016/2017 Advanced Robotics

Coordinator, 6 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

A.A. 2015/2016 PhD course on **Statistical Filtering and Control for**

AI and Robotics with Alessandro Farinelli,

Department of Computer Science, University of Verona, Italy

A.A. 2015/2016 Advanced Robotics

Coordinator, 6 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

A.A. 2014/2015 Robotics

Coordinator, 6 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

A.A. 2013/2014 Robotics

Coordinator, 6 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

A.A. 2012/2013 Robotics

Coordinator, 6 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

A.A. 2009/2010 System Theory (as Adjunct Professor)

4 ECTS

Master Degree Computer Science and Engineering, Department of Computer Science, University of Verona, Italy

ADVISOR PHD STUDENTS

- Giacomo De Rossi, *ON GOING*
Topic: Teleoperation, Shared Control
- Jacopo Mocchi, *ON GOING*
Topic: Adaptive Optics Systems

PUBLICATIONS

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Journal Papers

- [1] Mocci J., Quintavalla M., Trestino C., Bonora S. and Muradore R., “Development of a multi-platform CPU-based architecture for cost-effective adaptive optics systems”, submitted to IEEE Transactions on Industrial Informatics, **to appear**.
- [2] Diodato, A., Brancadoro M., De Rossi G., Abidi H., Dall’Alba D., Muradore R., Ciuti G., Fiorini P., Menciassi A., Cianchetti M., “Soft Robotic Manipulator for Improving Dexterity in Minimally Invasive Surgery”, *Surgical Innovation*, Volume 25(1), pp. 69–76 , 2018.
- [3] Calanca A., Muradore R. and Fiorini P., “Passive Impedance Control of Series Elastic Actuators: Overcoming the Physical Spring Stiffness”, *Mechatronics*, Volume 47, pp. 37–48, November 2017.
- [4] Malapelle F., Dall’Alba D., Dalla Fontana D., Dall’Alba I., Fiorini P., Muradore R., “Cost Effective Quality Assessment in Industrial Parts Manufacturing via Optical Acquisition”, *Procedia Manufacturing*, Volume 11, pp. 1207–1214, 2017.
- [5] Mathiassen K., Dall’Alba D., Muradore R., Fiorini P., and Elle O.J., “Robust Real-Time Needle Tracking in 2D Ultrasound Images using Statistical Filtering”, *IEEE Transactions on Control Systems Technology*, Vol. 25, No. 3, pp. 966–978, May 2017.
- [6] Preda N., Ferraguti F., De Rossi G., Secchi C., Muradore R., Fiorini P., and Bonfè M., “A Cognitive Robot Control Architecture for Autonomous Execution of Surgical Tasks”, *Journal of Medical Robotics Research*, Vol. 1, No. 4, pp. 1650008-1–19, 2016.
- [7] Quaglia D. and Muradore R., “Communication-aware Predictive Control of Motor Drives in Electric Vehicles”, *IEEE Transactions on Industrial Electronics*, vol. 63, n. 9, pp. 5602-5611, Sept. 2016.
- [8] Calanca A., Muradore R. and Fiorini P., “A Review of Algorithms for Compliant Control of Stiff and Fixed-Compliance Robots”, *IEEE Transactions on Mechatronics*, vol. 21, n. 2, pp. 613-624, 2016.
- [9] Muradore R. and Fiorini P., “A Review of Bilateral Teleoperation Algorithms”, *Acta Polytechnica Hungarica*, vol. 13, n. 1, pp. 191-208, 2016 (**Bejczy Special Issue**).
- [10] Lora M., Muradore R., Quaglia D. and Fummi F., “Simulation Alternatives for the Verification of Networked Cyber-Physical Systems”, *Microprocessors and Microsystems*, vol. 39, n. 8, pp. 843-853, 2015.

- [11] Bresolin D., Geretti L., Muradore R., Fiorini P. and Villa T., “Formal Verification of robotic surgery tasks by reachability analysis”, *Microprocessors and Microsystems*, vol. 39, n. 8, pp. 836-842, 2015.
- [12] Ferraguti F., Preda N., Manurung A., Bonfé M., Lambercy O., Gassert R., Muradore R., Fiorini P. and Secchi C., “An Energy Tank-Based Interactive Control Architecture for Autonomous and Teleoperated Robotic Surgery”, *IEEE Transactions on Robotics*, vol.31, no.5, pp.1073-1088, Oct. 2015.
- [13] Muradore R. and Quaglia D. “Energy-Efficient Intrusion Detection and Mitigation for Networked Control Systems Security”, *IEEE Transactions on Industrial Informatics*, vol.11, no.3, pp.830-840, June 2015.
- [14] Riccardo Muradore, Paolo Fiorini, Gokhan Akgun, Duygun Erol Barkana, Marcello Bonfé, Fabrizio Boriero, Andrea Caprara, Giacomo De Rossi, Riccardo Dodi, Ole Jakob Elle, Federica Ferraguti, Lorenza Gasperotti, Roger Gassert, Kim Mathiassen, Dilla Handini, Olivier Lamercy, Lin Li, Maarja Kruusmaa, Auralius Oberman Manurung, Giovanni Meruzzi, Ho Quoc Phuong Nguyen, Nicola Preda, Gianluca Riolfo, Asko Ristolainen, Alberto Sanna, Cristian Secchi, Marco Torsello and Asim Evren Yantac, “Development of a Cognitive Robotic System for Simple Surgical Tasks”, *Int J Adv Robot Syst*, 2015, 12:37. doi: 10.5772/60137 (**Invited paper**)
- [15] Muradore R., Pettazzi L., Clare R. and Fedrigo E., “An application of adaptive techniques to vibration rejection in adaptive optics systems”, *Control Engineering Practice*, vol.32, pp.87-95, 2014.
- [16] Repele L., Muradore R., Quaglia D., Fiorini P., “Improving Performance of Networked Control Systems by Using Adaptive Buffering”, *IEEE Transactions on Industrial Electronics*, vol.61, no.9, pp.4847-4856, 2014.
- [17] Muradore R. and Fiorini P., “A PLS-Based Statistical Approach for Fault Detection and Isolation of Robotic Manipulators”, *IEEE Transactions on Industrial Electronics*, vol.59, no.8, pp.3167-3175, 2012.
- [18] Quaglia D., Muradore R., Bragantini R., and Fiorini P., “A SystemC/Matlab co-simulation tool for networked control systems”, *Simulation Modelling Practice and Theory*, vol. 23, pp.71-86, 2012.
- [19] Muradore R., Bresolin D., Geretti L., Fiorini P. and Villa, T., “Robotic Surgery”, *Robotics & Automation Magazine*, IEEE , vol.18, no.3, pp.24-32, Sept. 2011.
- [20] Chiuso A., Muradore R. and Marchetti E. “Dynamic Calibration of Adaptive Optics Systems: A System Identification Approach”, *IEEE Transactions on Control Systems Technology*, vol.18, no.3, pp.705-713, May 2010.
- [21] Fedrigo E., Muradore R. and Zilio D. “High performance Adaptive Optics system with fine tip/tilt control”, *Control Engineering Practice*, Volume 17, Issue 1, Pages 122-135, January 2009.
- [22] Muradore R., F. Bezzo and Barolo M. “Optimal Sensor Location for Distributed Sensor Systems using Multivariate Regression”, *Computer and Chemical Engineering*, Vol. 30, No. 3, pp. 521-534, 2006.

- [23] Bezzo F., Micheletti F., Muradore R. and Barolo M. “Using MPC to control middle-vessel continuous distillation columns”, *Journal of Process Control*, Vol. 15, No. 8, pp. 925-930, December 2005.
- [24] Muradore R. and G. Picci (2005) “Mixed $\mathcal{H}_2/\mathcal{H}_\infty$ control: the discrete-time case”, *Systems & Control Letters*, Vol. 54, No. 1, pp. 1-13, January 2005.

Book Chapters

- [25] Calanca A., Muradore R., Fiorini P., “Impedance Control of Series Elastic Actuators Using Acceleration Feedback”, *Wearable Robotics: Challenges and Trends*, Springer International Publishing, pp. 33-37, 2017.
- [26] Muradore R., Quaglia D., and Fiorini P. “Model Predictive Controllers over Differentiated Services Packet Networks”, In Jan H. van Schuppen and Tiziano Villa Editors, “Coordination Control of Distributed Systems”, *Lecture Notes in Control and Information Sciences*, Springer, pp. 273-281, 2015.
- [27] Quaglia D., Muradore R., and Fiorini P. “A SystemC/MATLAB Co-simulation Tool for Networked Control Systems”, In Jan H. van Schuppen and Tiziano Villa Editors, “Coordination Control of Distributed Systems”, *Lecture Notes in Control and Information Sciences*, Springer, pp. 283-290, 2015.
- [28] Bresolin D., Geretti L., Muradore R., Fiorini P., and Villa T. “Formal Verification Applied to Robotic Surgery”, In Jan H. van Schuppen and Tiziano Villa Editors, “Coordination Control of Distributed Systems”, *Lecture Notes in Control and Information Sciences*, Springer, pp. 347-355, 2015.

Conference Papers

- [29] Geretti L., Muradore R., Bresolin D., Fiorini P., Villa T., “Parametric Formal Verification: The Robotic Paint Spraying Case Study”, 20th IFAC World Congress, Toulouse, France, 9-14 July, 2017.
- [30] Boriero F., Sansonetto N., Marigonda A., Muradore R., Fiorini P., “Optimal Solution of Kinodynamic Motion Planning for the Cart-Pole System”, 20th IFAC World Congress, Toulouse, France, 9-14 July, 2017.
- [31] De Rossi G., Muradore R., “A Bilateral Teleoperation Architecture Using Smith Predictor and Adaptive Network Buffering”, 20th IFAC World Congress, Toulouse, France, 9-14 July, 2017.
- [32] Malapelle F., Dall’Alba D., Dalla Fontana D., Dall’Alba I., Fiorini P., Muradore R., “Cost Effective Quality Assessment in Industrial Parts Manufacturing via Optical Acquisition”, 27th International Conference on Flexible Automation and Intelligent Manufacturing, FAIM2017, 27-30 June 2017, Modena, Italy. (*To be published in Procedia Manufacturing*)

- [33] Lanotte R., Merro M., Muradore R., Viganò, L., “A Formal Approach to Cyber-Physical Attacks”, 30th IEEE Computer Security Foundations Symposium, CSF, Santa Barbara, California, US, August 21-25, 2017.
- [34] Mocchi J., Cua M., Lee S., Jian Y., Pozzi P., Quintavalla M., Trestino C., Verstraete H., Muradore R., Zawadzki R.J., Wahl D., Verhaegen M., Sarunic M.V., Bonora S., “Wavefront control with a multi-actuator adaptive Lens in imaging applications”, Proc. SPIE 10073, Adaptive Optics and Wavefront Control for Biological Systems II, SPIE BIOS, 2017.
- [35] Sartori E., Fiorini P., Muradore R., “Cutaneous Feedback in Teleoperated Robotic Hands”, 42nd Annual Conference of IEEE Industrial Electronics Society (IECON) 16, Florence, Italy, October 24-27, 2016.
- [36] Haider Abidi, Matteo Cianchetti, Margherita Brancadoro, Alessandro Diodato, Giacomo De Rossi, Diego Dall’Alba, Riccardo Muradore, Gastone Ciuti, Paolo Fiorini, Arianna Menciassi, “Soft endoscopic camera system for robotic surgery: a dVRK implementation”, Proceedings of the 6th Joint Workshop on New Technologies for Computer/Robot Assisted Surgery, CRAS 2016, Pisa, Italy, September 12-14, 2016.
- [37] Bertolaso A., Raeissi M.M., Farinelli A., and Muradore R., “Using Petri Net Plans for Modeling UAV-UGV Cooperative Landing”, European Conference on Artificial Intelligence (ECAI), The Hague, The Netherlands, Aug 29 - Sept 02, 2016, pp. 1720-1721.
- [38] Tadiello C., De Rossi G., Capiluppi M., Muradore R., Fiorini P., “Teaching physical Human-Robot Interaction to Computer Science Undergraduate Students”, Proceedings of the European Control Conference, Aalborg, Denmark, June 29 - July 1, 2016, pp. 376–381.
- [39] Visentin F., Muradore R., Capiluppi M., Suzuki K., Fiorini P., “A Smart Skin Based Measurement System for Abnormality Identification in Soft Tissue Palpation”, The 9th Hamlyn Symposium on Medical Robotics, London, UK, June 25-28, 2016, pp. 62–63.
- [40] Pettazzi L., Muradore R., Fedrigo E., Haguenaer P. and Pallanca L., “Improving the Accuracy of Interferometric Measurements through Adaptive Vibration Cancellation”, IEEE Multi-Conference on Systems and Control, Sydney, Australia, 2015.
- [41] Ferraguti F., Preda N., De Rossi G., Bonfé B., Muradore R., Fiorini P. and Secchi C., “A Two-Layer Approach for Shared Control in Semi-Autonomous Robotic Surgery”, Proceedings of the European Control Conference, Linz, Austria, July 15-17, 2015.
- [42] Depalo A., Barolo M., Bezzo F. and Muradore R., “Phase identification for product quality prediction in batch processes: application to industrial resin production”, Proceedings of the European Control Conference, Linz, Austria, July 15-17, 2015.
- [43] Muradore R., De Rossi G., Bonfé M., Preda N., Secchi C., Ferraguti F., and Fiorini P., “Autonomous Execution of Surgical Tasks: the Next Step

in Robotic Surgery” The 8th Hamlyn Symposium on Medical Robotics, London, UK, June 20-23, 2015.

- [43] Mocchi J., Bonora S. and Muradore R., “Development of a CPU-based architecture for high performance adaptive optics systems”, The International Workshop on Adaptive Optics for Industry and Medicine, Padova, Italy, June 15-19, 2015.
- [44] Muradore R., Pettazzi L., and Fedrigo E., “Adaptive Vibration Cancellation in Adaptive Optics: an Experimental Validation”, Proceedings of the European Control Conference, Strasbourg, France, June 24-27, 2014, pp. 2418-2423.
- [45] Bonfé M., Preda N., Secchi C., Ferraguti F., Muradore R., Repele L., Lorenzi G., and Fiorini P., “Distributed Control Architecture for Automated Surgical Task Execution with Coordinated Robot Arms”, Proceedings of 19th World Congress The International Federation of Automatic Control, Cape Town, South Africa, August 24-29, 2014, pp. 10213-10218.
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Verona, March 2018

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