Curriculum of Dr. Pietro Falco

PERSONAL INFORMATION

First name: Pietro

Family name: Falco

Date of birth: 03/05/1984

Birthplace: Naples

Nationality: Italian

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SHORT BIO

I was born in Naples on May 3th, 1984. I received the Laurea Triennale and the Laurea Magistrale in 2006 and 2008 respectively. In February 2012, I received the Research Doctorate degree in Electronic Engineering and until February 2015 I held a Post-Doc position at Second University of Naples (now University of Campania Luigi Vanvitelli). From December 2010 to July 2011 I was a Visiting Scholar at Karlsruher Institute of Technology (KIT) in Karlsruhe, under the supervision of Prof. Dillmann. My research interests include machine learning for robotics, observation of human manipulation, robotic mobile manipulation, and Bayesian sensor fusion. I participated in European projects concerning mobile manipulation in unstructured environments such as DEXMART, ECHORD, SAPHARI, EUROC. In 2011, I co-founded the company Aeromechs s.r.l. Few months after the foundation, Aeromechs was awarded 3 EU Clean-Sky projects (I-PRIMES, EPOCAL, MASDENADA) concerning intelligent energy management and one national grant for innovative startups. In 2015 I left the active co-leadership of the company and moved to Munich, to continue my academic career in Germany.

In March 2015, I was appointed "TUM Foundation Fellow" at Technical University of Munich and in February I earned a Marie Curie Individual Fellowship for the project proposal LEACON "LEArning-CONtrol tight interaction: a novel approach to robust execution of mobile manipulation tasks". In January 2018, I joined ABB Corporate Research in Sweden as a tenured senior research scientist and project manager, in order to gain experience in industrial research.

EDUCATION

1/11/2008 – 17/01/2012 PhD in Electronic Engineering (curriculum Robotics)
Information Engineering Faculty, Department of Information Engineering, Second University of Naples, Italy (now University of Campania Luigi Vanvitelli) and Karlsruhe Institute of Technology, Germany.

1/04/2006 – 28/10/2008 Master in Computer Engineering earned with mark 110/110 magna cum laude**,** Information Engineering Faculty, Department of Information Engineering, Second University of Naples, Italy (now University of Campania "Luigi Vanvitelli".)

1/10/2002 – 30/3/2006 Bachelor in Computer Engineering earned with mark 110/110 magna cum laude**,** Information Engineering Faculty, Department of Information Engineering, Second

University of Naples, Italy

CURRENT POSITION

6/2023 – now. Assistant Professor **(**RTDB**)** in Automatic Control and Robotics at University of Padova, Italy.

PREVIOUS POSITIONS

1/2018 – 5/2023 Senior Scientist and Project Manager at ABB Corporate Research, Department of Automation Solutions, Västerås, Sweden. Responsible for research on autonomous robotics and machine learning for robotics.

4/2016-12/2017 Marie Curie Fellow at Technical University of Munich for the project LEACON (LEArning-CONtrol tight interaction: a novel approach to robust execution of mobile manipulation tasks), hosted within the group of Prof. Dongheui Lee.

1/4/2015- 1/4/2016 TUM University Foundation Fellow, Technical University of Munich, Germany, hosted within the group of Prof. Dongheui Lee.

1/12/2012 – 28/02/2015 Postdoctoral fellow
Information Engineering Faculty, Department of Information Engineering, Second University of Naples, Italy, with Professor Ciro Natale.

1/12/2010 – 1/7/2011 Visiting scholar at Karlsruhe Institute of Technology (KIT), Germany. Research topic: Improvement of human hand motion observation exploiting measurements of the fingertip contact forces, in collaboration with Prof. R. Dillmann.

PARTICIPATION IN RESEARCH PROJECTS

2/2021 – 6/2023. HARMONY: Enhancing Healthcare with Assistive Robotic Mobile Manipulation. H2020-ICT-46-2020**.** Proposal responsible and Principal investigator for ABB, leader of WP1 and WP2. Amount for ABB: 1M EUR, total amount: 7M EUR.

1/2020 – present. EU Project (H2020-ICT-2019) 5GSmart, responsible of the robotics aspects within ABB use cases.

3/2016 – 1/2018: LEACON (LEArning-CONtrol tight interaction: a novel approach to robust execution of mobile manipulation tasks). Marie Curie Individual Fellowship for experienced Researchers. Writer of the proposal. Amount granted: 350 kEUR

1/3/2014 – 3/3/2015. European FP7 project **EUROC**
Activity: definition of metrics able to evaluate the performance of flexible, reconfigurable robotics cells.

6/2013 - 4/2014 Coordinator of ”SUN team” within the KUKA Manipulation Awards competition. It is a worldwide competition on mobile manipulation organized by the company ”KUKA Labs”.
Title of the proposal: Sensor-based reactive execution for mobile manipulation applications: a

ROS integrated framework.
Team members: M. D. Fiore, G. Laudante, G. Musone, L. Tecchia
After the competition, Mario Daniele Fiore and Luigi Tecchia, have been accepted for an internship in order to implement the proposed methods on the new-generation mobile manipulators, and then hired in KUKA.

6/2011 – 6/2016. European FP7 project **SAPHARI**.
Activity: development of a novel method for close range monitoring of dynamic obstacles for a mobile manipulator, based on a distributed approach of simple sensing elements along the robot body, endowing the robot with an additional safety feature.

8/2012 - 8/2013 Italian Project (PON) **ROCOCO** Activity: development of planning algorithms for mobile manipulation in partially unknown environments. Leader of

3/2010 - 12/2010 European FP7 project **ECHORD**
Activity: management of web site and contacts

11/2008 – 11/2011 European FP7 project **DEXMART**
Activity: Design of sensor fusion methods and algorithm for observation of human manipulation in robot Programming by Demonstration applications

TEACHING ACTIVITIES

2/10/2023 – 19/01/2024. Lecturer for the course **"**Control Systems", 9CFU at University of Padova, for the bachelor degree "Information Engineering".

4/4/2021 Invited Lecture at Chalmers University in Göteborg, Sweden within the course "Modelling and Control of Mechatronic Systems", held by Professor Yiannis Karayiannidis. Topic: Motion Planning and Control for Mobile Manipulators.

3/4/2020 Invited Lecture at Chalmers University in Göteborg, Sweden within the course "Modelling and Control of Mechatronic Systems", held by Professor Yiannis Karayiannidis. Topic: Motion Planning and Control for Mobile Manipulators.

4/4/ 2019 Lecture at Mälardalens University, Västerås, Sweden invited by Professor Ning Xiong with Title: "Reinforcement learning for robotics: fundamentals and potential industrial applications".

15/05/2018 Invited Lecture at Uppsala University, Sweden by Professor Ginevra Castellano with title: "Policy search for learning trajectories: fundamentals and potential industrial applications

10/2017 – 4/2018 Solo lecturer of the course **Reinforcement Learning for Robotics** at Technical University of Munich.

10/2015 – 2/2017. Assistant teacher for the course **Dynamic Human-Robot Interaction,** held by Professor Dongheui Lee at TU Munich. Supervisor of student projects and guest lecturer for the lesson: *Probabilistic Methods for State Estimation and Sensor Fusion*.

5/2014 - 6/2014 Teacher of the course **Automation and Industrial Robotics** within the Italian project (PON) BACKOP at National Research Council (CNR), Institute of Optics. Course for graduate students and research doctors on fundamentals of robotics and automation.

8/2008 – 3/2015 Assistant teacher for the course **Robotics**, held by Prof. Ciro Natale at Second University of Naples. Activity: Lessons on sensor fusion techniques, Robot Operating System (ROS) framework and practical exercises in robotics laboratory.
8/2012 - 3/2015 Guest Lecturer in the course **Mechatronics** held by Prof. Ciro Natale.
Activity: lessons on real-time systems.

5/2013 - 6/2013 Teacher for the vocational training relative to the project IESWECAN
Topic: **Automatic Code Generation with Matlab/Simulink**. Course for graduate students.

9/2009 - 9/2010 Tutoring for disabled students at the Faculty of Engineering at Second University of Naples in the following subjects: Linear Algebra, Mathematical Analysis, Object Oriented Programming, Control Theory. Position earned after a competitive selection based on the curriculum of the applicants and on an interview.

3/2009 - 5/2009 Teacher of the course ”Computer Science” (advanced level) at I.T.C.G. Carlo Andreozzi in Aversa within PON 2007-2013. The course was meant to keep the high-school teachers updated on the modern computer science technologies (mainly design of data base with SQL and computer network protocols).

9/2007 - 10/2008 Assistant teacher for the course **Linear algebra** (about 100 students) at Engineering Faculty, Second University of Naples. Teaching obtained during the master degree thanks to the merits during the bachelor studies.

RECENT INVITED TALKS AND SEMINARS

22/06/2021: Invited speaker at the Webinar “5G and Industrial Robotics” organized by Ericsson within the EU project 5GSmart.

20/06/2021 : Invited talk as Keynote Speaker at IEEE Industrial Electronics Society Conference (IES), Industry Forum. Title of the talk: “Mobile Manipulation for Healthcare and Logistics”

4/6/2021: Invited talk as Keynote Speaker at the workshop: “*Unlocking the potential of human-robot collaboration for industrial applications*" at International Conference on Robotics and Automation (ICRA). Title: Towards Collaborative Mobile Manipulation.

22/05/2021: Invited Seminar at the school of Electrical Engineering and Computer Science, Royal Institute of Technology (KTH), Stockholm. Audience: master and PhD students in Electrical Engineering. Topic: Motion planning for mobile manipulation.

21/05/2021: Seminar at the Department of Information Engineering, University Luigi Vanvitelli, Aversa Italy. Topic: “Reinforcement Learning for Robotics.”

25/08/2018: Invited talk at the workshop “Robotics at Chalmers -- full-day workshop / IEEE Robotics and Automation Society (RAS) Swedish Chapter”, Chalmers University, Göteborg, Sweden. Topic: “Activities on Intelligent Robotics at ABB Corporate Research”.

ENTERPRISE ACTIVITY

In 8/2011 I co-founded with Dr. Beniamino Guida, Dr. Luigi Rubino, Eng. Guido Rubino the SME Aeromechs srl. The activity of the company is mainly focused on the fields of aeronautics and mechatronics systems. Few months after its foundation, Aeromechs obtained funding in 3 European projects: I-PRIMES, EPOCAL, MAS DE NADA within the JTI CLEAN SKY.
I contributed personally both in the general idea and in the preparation of the proposals. Moreover, the company obtained grants for two national research projects concerning augmented reality (CHEESE) and home automation (X-DOM). As partners and customers of Aeromechs, prestigious institutions like Alenia Aermacchi, Matra BAE Dynamics Alenia (MBDA), and Italian CRN Motors Institute can be mentioned as well as small local companies which look for customized solutions.
In 2012, due to the project "SMARTDOM", I earned with the other Aeromechs founders (Dr. Beniamino Guida, Dr. Luigi Rubino, Eng. Guido Rubino) the Creative Cluster award, in which the five best business ideas from young entrepreneurs are selected (5 on more than 80 ideas have been awarded). In 2014, I left the active co-leadership of Aeromechs in order to work full time in robotics research.

ACTIVITY AS A CONSULTANT FOR TECHOLOGY TRANSFER

From July 2016 to January 2018, I was an external advisor for the startup Robotcloud UG (http://www.robotcloud.eu/) concerning the applications of modern machine learning techniques, such as reinforcement learning and deep learning, to robotics.

RESEARCH GRANTS AND FELLOWSHIPS

1/2021. EU Research and Innovation Action "HARMONY: Enhancing Healthcare with Assistive Robotic Mobile Manipulation". H2020-ICT-46-2020**.** Proposal responsible and Principal investigator for ABB, leader of WP1 (Scenario and Requirements) and WP2 (System architecture and integration).

2/2016 - 12/2017 I was awarded an individual *Marie Curie fellowship for experienced researchers*, for the project LEACON "LEArning-CONtrol tight interaction: a novel approach to robust execution of mobile manipulation tasks", in cooperation with TUM. The aim of the project is to bridge machine learning and control to achieve enhanced performance of robotic systems in unstructured environments.

1/2015 I was awarded a *TUM Foundation Fellowship* (TUFF). It is an annual fellowship to build and strengthen contacts between TUM and the best young scientists around the world.

2009 – 2011 Scholarship granted by the Italian "Ministero della Istruzione, della Università e della Ricerca" to carry out research during the doctoral studies (awarded by public competition).

5/ 2017 – *Finalist for the Freigeist Fellowship* issued by Volkswagen Stiftung, for a position of head of junior research group.

RESEARCH PROJECTS AS AN ENTERPRENEUR

2013 - 2014 EPOCAL (200 keuro) co-author of the proposal (B. Guida, L. Rubino, G. Rubino, P. Falco) and contact point for WP1: "Architecture design"
2012 – 2013 I-PRIMES (100 keuro) co-author of the proposal (B. Guida, L. Rubino, G. Rubino, P. Falco) and contact point for WP1: "Requirements analysis"

2012 – 2013 MAS DE NADA (100 keuro) contact point of WP1 "Analysis"

AWARDS

8/2023: Elevation to IEEE senior member

1/2020: Italian Scientific Habilitation **(**Abilitazione Scientifica Nazionale) for Associate Professorship in the area "Automatica".

1/2019 ABB Certificate of gratitude, for significant contribution in the advancement of mobile manipulation research and "extraordinary supervision skills".

8/2015 Best interactive presentation award at SIDRA 2015. A. Cirillo, P. Cirillo, G. De Maria, P. Falco, C. Natale, S. Pirozzi. Latest Results on Force/Tactile Sensing. SIDRA 2015, Bari.

7/2014 I was selected to participate to the Research Opportunity Week 2014, Oct. 20-24 at Technical University of Munich.

8/2013 Best interactive presentation award at SIDRA 2013. A. Cavallo, A. Cirillo, P. Cirillo, G. De Maria, P. Falco, C. Natale, S. Pirozzi. From DEXMART tactile sensors to SAPHARI artificial skin. SIDRA 2013, Palermo.

11/2012 Creative cluster award 2012, for the 5 best business ideas (selected among 85 proposals). Title of the project: SMARTDOM: a flexible, noninvasive home automation system. Team members: P. Falco, B. Guida, L. Rubino, G. Rubino.

10/2010 I was selected for participation in BRICS Research Camp on Best Practice in Mobile Manipulation, Malaga, Spain, October 25 - 29, 2010.

ACTIVITY AS A REVIEWER

- International Journal of Robotic Research (IJRR)
- IEEE/ASME Transactions on Mechatronics
- Control Engineering Practice, Elsevier
- Robotics and Autonomous Systems, Elsevier
- IEEE Transactions on Control Systems Technology
- Sensors and Actuators, Elsevier
- IEEE Robotics and Automation Letters (RAL)
- IROS, ICRA, and other popular conferences on robotics and automation

ACTIVITY IN JOURNAL EDITORIAL BOARDS

Associate editor of the journal "IEEE Robotics and Automation Letters (RA-L)". Field: Robot Learning (2023- now).
Associate editor of the journal "IEEE Robotics and Automation Letters (RA-L)". Field: Learning and Adaptive Systems (2018-2020).

Associate editor for the International Conference on Robotics and Automation (ICRA) 2024
Associate editor for the International Conference on Robotics and Automation (ICRA) 2021
Associate editor for the International Conference on Robotics and Automation (ICRA) 2020

SUPERVISION OF STUDENTS AND PhD CANDIDATES

1/2018 – 6/2023. Industrial supervisor of three PhD students (Shahbaz Khader, Matteo Iovino, Johan Wessen,) within WASP (Wallenberg Autonomous Systems Program). Academic supervisors: Professor Danica Kragic, Professor Christian Smith, and Professor Christian Schulte. Shahbaz Khader successfully defended his thesis in 2021 with title **Data-Driven Methods for Contact-Rich Manipulation: Control Stability and Data-Efficiency.**

6/2018 – present. Design and implementation of the program "ABB research stay initiative for PhD students", industrial supervisor of four PhD students for seven months internship.

11/2019. Member of the PhD Committee for examining the PhD Thesis of Mrs. Maria Koskinopoulou, University of Crete, School of sciences and engineering, Department of computer science.

1/2018 – present. Industrial supervisor of 5 master students.

3/2015 – 12/2017. Supervisor of several graduate and undergraduate students at Technical University of Munich (about 15 students) for bachelor thesis, master thesis, practical projects, and interdisciplinary projects.

11/2008 – 3/2015. Supervisor of several graduate and undergraduate students at Second University of Naples (about 15 students).

INSTITUTIONAL RESPONSIBILITIES

6/2009 – 1/2012 Delegate of PhD candidates in the Department Board of Information Engineering Department, Second University of Naples. Earned by elections.

ORGANIZATION OF SCIENTIFIC EVENTS

Organizer of the workshop "The Role of Uncertainty and How it is Tackled in Robotic Grasping and Manipulation". Organizers: Yasemin Bekiroglu, Marc Peter Deisenroth, Miao Li, Lorenzo Jamone, Roberto Calandra, Dimitrios Kanoulas Florian T. Pokorny, Pietro Falco.
In the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IROS 2022.

Organizer with Dr. Matteo Saveriano and Dr. Sylvain Calinon of the full-day ICRA workshop: "Learning for INdustry 4.0: feasibility and Challenges"
at ICRA 2019.

Organizer – with Dr. Fanny Ficuciello and Dr. Sylvain Calinon - of the full day Workshop: "Learning and control for autonomous manipulation systems: the role of dimensionality reduction" at ICRA 2017, Singapore (Approximately 100 participants).

The 8th International Workshop on Human-Friendly Robotics, Munich, October 2015.
Member of the local organization team together with Prof. Dongheui and Dr. Maximo Roa

Publications

Journal articles

1. Khader, S. A., Yin, H., **Falco, P.**, & Kragic, D. (2021). “Learning Deep Energy Shaping Policies for Stability-Guaranteed Manipulation”. IEEE Robotics and Automation Letters, 6(4), 8583-8590.
2. Khader, Shahbaz Abdul, H. Yin, **P. Falco**, and D. Kragic. "Stability-guaranteed reinforcement learning for contact-rich manipulation." IEEE Robotics and Automation Letters 6, no. 1 (2020): 1-8, DOI: 10.1109/LRA.2020.3028529; ISSN: 2377-3766
3. S. A., Yin, H., **Falco, P**., Kragic, D. (2020). Data-Efficient Model Learning and Prediction for Contact-Rich Manipulation Tasks. IEEE Robotics and Automation Letters, 5(3), 4321-4328.
4. Y. Gao, Y. Wang, **P. Falco**, N. Navab and F. Tombari, "Variational Object-Aware 3-D Hand Pose From a Single RGB Image," in IEEE Robotics and Automation Letters, vol. 4, no. 4, pp. 4239-4246, Oct. 2019 (invited also for presentation at IROS 2019).
5. **P. Falco**, S. Lu, C. Natale, S. Pirozzi, D. Lee, "A Transfer Learning Approach to Cross-Modal Object Recognition: From Visual Observation to Robotic Haptic Exploration," in IEEE Transactions on Robotics, vol. 35, no. 4, pp. 987-998, Aug. 2019
6. F. Ficuciello, A. Migliozzi, G. Laudante, **P. Falco** and B. Siciliano, Vision-based grasp learning of an anthropomorphic hand-arm system in a synergy-based control framework. Science Robotics. 30 Jan 2019: Vol. 4, Issue 26
7. **P. Falco**, M. Saveriano, D. Shah and D. Lee. Representing human motion with FADE and U-FADE: an efficient frequency-domain approach. Autonomous Robots, January 2019, Volume 43, Issue 1, pp 179–196 2019.
8. F. Ficuciello, **P. Falco** and S. Calinon, "A Brief Survey on the Role of Dimensionality Reduction in Manipulation Learning and Control," in IEEE Robotics and Automation Letters, vol. 3, no. 3, pp. 2608-2615, July 2018
9. **P. Falco**, A. Attawia, M. Saveriano and D. Lee, "On Policy Learning Robust to Irreversible Events: An Application to Robotic In-Hand Manipulation," in IEEE Robotics and Automation Letters, vol. 3, no. 3, pp. 1482-1489, July 2018 (invited also for presentation at ICRA 2018)
10. **P. Falco**, M . Saveriano, E.G. Hasany, N. H. Kirk, D. Lee**,** A Human Action Descriptor Based on Motion Coordination. IEEE Robotics and Automation Letters (RA-L) 2 (2), 2017, 811 – 818 (invited also for presentation at ICRA 2017)
11. **P. Falco** and C. Natale; Low-level flexible planning for mobile manipulators: a distributed perception approach; Advanced Robotics. Volume 28, Issue 21, 2014.
12. M. Bjerkeng, **P. Falco**, C. Natale and K. Y. Pettersen, Stability analysis of a hierarchical architecture for discrete-time sensor-based control of robotic systems, IEEE Transactions on Robotics, ISSN Volume 30, Issue 3, 2014.
13. 12. Cavallo, **P. Falco**, On-line segmentation and classification of manipulation actions from the observation of kinetostatic data, IEEE Transactions on Human-Machine System Volume 44, Issue 2, 2014.

14. **P. Falco**, C. Natale, R. Dillmann, Ensuring kinetostatic consistency in observation of human manipulation, Elsevier Robotics and Autonomous Systems Volume 61, Issue 5, May 2013.
15. **P. Falco**, G. De Maria, C.Natale, S. Pirozzi, "Data fusion based on optical technology for observation of human manipulation, Int. Journal of Optomechatonics, Taylor & Francis, vol. 6, no. 1, March 2012.
16. **P. Falco**, C. Natale, "On the stability of closed-loop inverse kinematics algorithms for redundant robots", IEEE Trans. on Robotics, IEEE Press, Inc., vol. 27, No. 4, pp. 780-784, 2011.

Peer-reviewed conference and workshop papers

1. M.Iovino, J. Styrud, **P. Falco**, C. Smith. A Framework for Learning Behavior Trees in Collaborative Robotic Applications. IEEE CASE 2023.
2. M. Iovino, J. Förster, **P. Falco**, J. J. Chung, R. Siegwart, C. Smith. On the programming effort required to generate Behavior Trees and Finite State Machines for robotic applications. International Conference on Robotics and Automation (ICRA), 2023.
3. Koskinopoulou, Maria, **Pietro Falco**, and Panos Trahanias. "Force-prediction Scheme for Precise Grip-lifting Movements." 2022 8th International Conference on Automation, Robotics and Applications (ICARA).
4. S Stavridis, **P. Falco**, Z. Doulgeri "Pick-and-Place in Dynamic Environments with a Mobile Dual-Arm Robot equipped with Distributed Distance Sensors" 2020 IEEE-RAS 20th International Conference on Humanoid Robots (Humanoids).
5. Iovino, Matteo, Jonathan Styrud, **Pietro Falco**, and Christian Smith. "Learning Behavior Trees with Genetic Programming in Unpredictable Environments, accepted to International Conference Robotics and Automation (ICRA) 2021.
6. Khader, Shahbaz Abdul, Hang Yin, **Pietro Falco**, and Danica Kragic. "Learning Stable Normalizing-Flow Control for Robotic Manipulation. Accepted to accepted to International Conference Robotics and Automation (ICRA) 2021
7. Shahbaz A Khader, Hang Yin, **Pietro Falco**, Danica Kragic, Stable Reinforcement Learning for Robotic Interaction Tasks, 32nd annual workshop of the Swedish Artificial Intelligence Society (SAIS) June 2020
8. M. Saveriano, Y. Yin, **P. Falco**, D. Lee, Learning Control Policies using a Simplified Robot Model accepted to IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017
9. **P. Falco**, S. Lu, A. Cirillo, C. Natale, S. Pirozzi, D. Lee. Cross-modal Visuo-Tactile Object Recognition Using Robotic Active Exploration. IEEE International Conference on Robotics and Automation (ICRA), 2017
10. Dharmil Shah*, **Pietro Falco***, Matteo Saveriano and Dongheui Lee, Encoding Human Actions with a Frequency Domain Approach, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2016 (the symbol "*" denotes equal contribution).
11. **P. Falco**, D Lee; Is a unified theory possible for robotics in unstructured environments?; ICRA 2015, Workshop on Compliant and Versatile Robot Control in Human Environments: Bridging the Gap between Learning and Control.
12. G. De Maria, **P. Falco**, C. Natale and S. Pirozzi, Integrated Force/Tactile Sensing: The Enabling Technology for Slipping Detection and Avoidance. International Conference on Robotics and automation (ICRA), 2015, pp. 3883-3889.
13. Cavallo, A. Cirillo, P. Cirillo, G. De Maria, **P. Falco**, C. Natale, S. Pirozzi, Experimental Comparison of Sensor Fusion Algorithms for Attitude Estimation,19th IFAC World Congress, Cape Town, South Africa, 24-29 August 2014.

14. M. Bjerken, **P. Falco**, C. Natale, K. Y. Pettersen, Discrete-Time Stability Analysis of a Motion Control Architecture for Heterogeneous Robotic Systems, 2013 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Tokyo, Japan; 3-8 November 2013.
15. **P. Falco**, R. Jaekel, C. Natale and R. Dillmann, Improvement of human hand motion observation by exploiting contact force measurements, IEEE-RAS International Conference on Humanoid Robots, 2011, Bled.
16. **P. Falco**, C. Natale; A Sensor Fusion Approach to Observation of human hand motion; First International Conference on Applied Bionics and Biomechanics (ICABB), Venice, Italy. 2010.
17. **P. Falco** and S. Pirozzi, A new data glove equipped with joint displacement sensors based on optoelectronic technology, International Conference on Applied Bionics and Biomechanics (ICABB), Venice, Italy 2010.
18. F. Corato, G. De Maria, **P. Falco**, C.Natale; A naturalness criterion for robot hand motion, International Conference on Applied Bionics and Biomechanics, Venice, Italy, 2010.
19. Corato, F., **Falco, P**., Loesch, M., Maggio, E., Jaekel, R., Villani, L. Original approaches to interpretation, learning and modeling, from the observation of human manipulation (2009). Robotics: Science and Systems, Workshop on Understanding the Human Hand for Advancing Robotic Manipulation Seattle, WA.

Patents:

1. **Pietro FALCO**, Jonatan BLOM, Jonas Larsson, Method of controlling mechanical impedance of robot, control system and robot. International Publication Number: WO2022167076A1. International publication date: 2022-08-11
2. Jonas Larsson, Aftab Ahmad, **Pietro FALCO**, Method of detecting sensor malfunction, control system, automated guided vehicle and mobile robot. International Publication Number: WO2022096096A1. International publication date: 2022-05-12
3. **Pietro Falco**, Ognjen Dobrijevic, Aftab Ahmad, Polychronis Kontaxakis, Externalized robot control with local support. Publication number: SE2350129A1. Date: 2023-02-13
4. Gade Jörgen, Vahabi Maryam, Jiang Xiaolin, Åkerberg Johan, **Falco Pietro**. Improving communication in an industrial automation system. Publication number: EP4181478A1. Date: 2023-02-13
5. **Pietro Falco**, Jordi Artigas. Method of inactivating pathogens, control system and robot system. Publication number: WO2023001367A. Date: 2023-01-26

Book Chapters

1. C. Borst , F. Zacharias, S. Schmidt, D. Leidner, M.A Roa, K. Hertkorn, G. Grunwald**, P. Falco**, C.Natale, E. Maggio. Observation and Execution. 2012 Springer-Verlag GmbH Berlin Heidelberg.
2. A.Cavallo, A. Cirillo, P. Cirillo, G. De Maria, **P. Falco**, C. Natale, S. Pirozzi. Research activity at Second University of Naples. ROCOCO Cooperative and Collaborative Robotics, 2013 Cues.