



Curriculum Vitae Europass



Personal Information

Name / Surname	Daniele Cafolla
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Webpage	http://www.danielecafolla.eu
Date of birth	12-04-1986
Nationality	Italian
Gender	Male

Education and training

Date	From: January 2013 to: March 2016
Title	PhD at LARM-DICeM, University of Cassino under the supervision of Prof. Marco Ceccarelli
Main activities and responsibilities	LabVIEW software development and testing, SolidWorks Design and Simulation, MSC ADAMS Simulation, Assembly of measurement, electronic and mechanic systems Thesis: “Design, Construction And Experimental Validation Of Cauto, CAssino hUmanoid TOrso” Supervisor: Prof. Marco Ceccarelli
Sector	Robotics, Mechanics
Date	From: 13 July 2014 to: 20 July 2014
Title	Summer School on Micro and Macro Mechanisms Design in Mechatronics and Robotics, Universitatea Politehnica Timișoara, Romania

Main activities and responsibilities	<p>The summer school addresses to PhD students, young researchers or specialists working in micro and macro mechanisms design used in robotics and mechatronics and who want to broaden their methodological skills.</p> <p>The summer school has comprised the following topics:</p> <ul style="list-style-type: none"> • Walking machines and their biological inspirations; • Mechanisms design used in mechatronic applications; • Machine design and error compensation for precise machine system; • Design of bolted joint and prevention against its loose; • Mechanism designs for robots: structures, performance, and applications; • Analysis, simulation and synthesis of planar linkages; • Developments of Gearless Reducers with Rolling Elements; • Motion Planning Approach of a Multi-arm Robot for Flexible Material Operations.
Sector	Design, Robotics, Mechanisms, Mechatronics
Date	From: October 2013 to: May 2014
Title	Research period at Intelligent Systems Centre (IntelliSys), Nanyang Technological University, Singapore
Main activities and responsibilities	Human-like Torso Mechanism based on Parallel Mechanisms development, IMU Sensors programming, CAD Model design and Testing, FEM Analysis, Rapid Prototyping
Sector	Supervisor: Prof. I-Ming Chen Robotics, Mechanics
Date	January 2013
Title	Professional practice examination for Engineering license (Sector A)
Name and type of organization providing education and training	University of Cassino and Southern Lazio
Date	From: May 2011 to: March 2012 (Master Thesis Dual Degree)
Title	<p>Dual Degree in Mechanical Engineering at Panamerican University campus Ciudad de México – México D.F.</p> <p>Carrying out, in the final year, the experimental course to obtain a double degree in agreement with the University of Cassino (FR)</p> <p>Grade: 110/110</p> <p>Thesis: “Static and dynamic balancing of a parallel manipulator”</p> <p>Supervisors: Marco Ceccarelli (University of Cassino) Mario Acevedo Alvarado (Panamerican University)</p>

Principal subjects/occupational skills acquired	At University of Cassino and of the Southern Lazio: Innovative technologies for production, Robot and automated system, Drives for automation, Instrumentation and measurement automation, Quality management, Industrial Logistics, Reliability and Safety. At Panamerican University: Integrated business management / company systematic approach, Control Systems for robotics, Product Design/Product and Process design, Advanced mechatronic design, Artificial Intelligence for automation, Research Seminar, Thesis and Project development.
Name and type of organization providing education and training	University of Cassino and Southern Lazio and Panamerican University
National classification level	Master Degree
Date	From: October 2006 to: April 2010
Title	Degree in Mechanical Engineering Grade: 95/110 Thesis: "Feasibility study of an exoskeleton for rehabilitation of the human hand" Supervisors: Giuseppe Carbone Marco Ceccarelli
Principal subjects/occupational skills acquired	- Basic training: Calculus, Physics, Chemistry, Fundamentals of computer science. -Core subjects: Drawing Machines, Technologies Applied Chemistry, Metallurgy, Structural Mechanics, Thermodynamics, Applied Thermodynamics, Machines, Energy Systems 1, Fundamentals of Mechanical Metrology, Fundamentals of applied mechanics, Mechanical Technology I, The Industrial, Fundamentals of machine construction. Activity-related training/supplementary: Fluid mechanics, Mechanical and thermal control systems, Electrical engineering. -Elective: Mechanics of industrial robots, Electrical drives for automation, Laboratory of Electric Drives, Mechanic of automatic machinery, Instrumentation and measurement for automation.
Name and type of organization providing education and training	University of Cassino
National classification level	Bachelor Degree
Date	July 2006
Title	High School Diploma
Principal subjects/occupational skills acquired	Mathematics, Physics, Biology, Chemistry, Geography and Astronomical Sciences, Italian Language and Literature, English Language and Literature, Latin Language and Literature, History, Philosophy, History of Art.
Name and type of organization providing education and training	Liceo Scientifico "F. Severi" di Frosinone
National classification level	High School Diploma

Professional experience	
Date	From: June 2018 – Ongoing
Job	Consultant for the Biomedical Engineering area
Main activities and responsibilities	To provide high-level technical and engineering services to researchers and medical staff of IRCCS Neuromed, to realize components to support the clinic and research.
Sector	Biomedical Engineering – Mechatronics
Date	Academic Year 2017-2018
Job	Professor of the "Robot Mechanics" course in "Master of Science in Mechatronics Engineering" SSD ING-IND / 13 CFU 9 at the University of Rome “Tor Vergata”
Main activities and responsibilities	The aims of the course are related to explain the main modeling and algorithms for analysis and design of the functioning of robot mechanisms in terms of mechanical performance. The students will learn how to handle the mechanics of robot by acquiring skills in analyzing and design, build and control robots for manipulation tasks.
Sector	Mechanics of Machinery and Robots (ING - IND / 13) – Engineering – Robotics
Date	From: August 2017– June 2018
Job	Postdoc research project: Innovative development of robotic systems for rehabilitation and assisting in healthy aging at the Technical University of Cluj-Napoca
Main activities and responsibilities	Agewell, Cod: SMIS - p 37 215, approaches an open problem in the healthcare of the aging population of Europe, committing to provide a viable solution of the acute therapy for stroke patients. The implementation team aims to deliver a solution that can be extended towards rehabilitation training in the later phases of the post-stroke therapy/rehabilitation as well as an exercise device for healthy aging of the elderly population.
Sector	Engineering - Biomedical engineering
Date	From: March 2016 – May 2017
Job	Postdoc research project: Design and experimental validation of mobile robotic platform structure and operation activities for cultural heritage at the University of Cassino and Southern Latium
Main activities and responsibilities	Study of existing mobile platforms and application areas, modeling of a preliminary mobile platform, analyzing the operation through dynamic simulations, validation of the platform through laboratory experiences, design and manufacture of the robot platform structure, implementation of the platform control, testing of the designed prototype in laboratory and application environment.
Sector	Mechanics of Machinery and Robots (ING - IND / 13)
Date	From: June 2014 to: July 2014
Job	Collaboration with Eurolink Srl company located in Frosinone, Italy
Main activities and responsibilities	Consulting and implementation of a committed work concerning the development of a project in the aerospace field for the customer Iacobucci HF Aerospace SpA. Documents and parameters necessary for the production of the model were computed and delivered. The design was carried out in CATIA environment.
Sector	CAD Modelling

	Date	From: September 2012 to: July 2013
	Job	Collaboration in the project C0242S10-CIG 05317226DE commissioned by Sogin SpA for the development and implementation of a robot prototype capable of walking in tubes of nuclear power plants and cut the inside via oxy-fuel cutting.
	Main activities and responsibilities	Development and testing of control programs in LabVIEW, Design and Simulation with SolidWorks, FEM simulation of temperature during the cutting process. Assembly of measurement, electronic and mechanic systems
	Sector	Robotics, Mechanics
	Date	From: September 2012 to: May 2013
	Job	Project related contract with the University of Cassino and Southern Lazio for the European project "MAGDRIVE Magnetic-Superconductor Cryogenic Non-contact Harmonic Drive". In collaboration with Carlos III University of Madrid
	Main activities and responsibilities	LabVIEW software development and testing, SolidWorks Design and Simulation, MSC ADAMS Simulation, Assembly of measurement, electronic and mechanic systems
	Sector	Robotics, Mechanics
	Date	From: May 2012 to: June 2017
	Job	Collaboration contracts with Eurolink Srl in Frosinone
	Main activities and responsibilities	Teaching on the following courses: <ul style="list-style-type: none"> • Basic and transversal skills addressed to people employed with a professional apprenticeship contract; • Business communication technician addressed to people in Integration and / or Mobility; • EDP operator addressed to persons in Integration and / or Mobility; • Design elements and installation techniques for photovoltaic solar systems for people in Integration and / or Mobility; • Specialization course in 3D modelling and animation using Catia software • Youth Guarantee project: specialization course in 3D modelling and animation using Catia software
	Sector	Classroom Tutor: <ul style="list-style-type: none"> • Specialization course in 3D modelling and animation using Catia software - Teacher: Eng. Sandro Lupattelli. Design, Mechanics, Information technology
	Date	From: July 2005 to: September 2005
	Job	Internship training in electronics, office machines and personal computers
	Main activities and responsibilities	Use and installation of personal computers. Electronic parts assembly and repair
	Sector	Sales and Service Private Company
Personal skills and competences		
	Native Language	Italian

Other languages
Self-assessment
European Level ()*

English

Spanish

Comprehension				Speaking				Writing	
Listening		Reading		Interaction		Construction			
C1	Proficient User	C1	Proficient User	C1	Proficient User	C1	Proficient User	C1	Proficient User
C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User

()Common European Framework of Reference for Languages*

Certification

Trinity College of London (grade 10) and Universidad Panamericana

Social skills

Ability to adapt to multicultural environments and good team spirit, skills acquired in the university by conducting several group projects in which it was essential the collaboration between different teams and with different working schedules;
Good in transmitting knowledge thanks to the mentoring activities carried out during the training.

Organizational skills

Good attitude to manage projects and teams developed in these contexts

Technical skills

Excellent theoretical and practical knowledge of instrumentation for measuring mechanical, electrical and electronic variables: oscilloscope, function generator, spectrum analyser, multimeter, acquired during the studies;
Ability in the use and programming of PLC systems;
Ability in the use and programming industrial robots;
Ability to design and to implement models and complex systems using the technology of Rapid Prototyping learned through the use of 3D printers while working on the thesis project at the laboratories of the Universidad Panamericana.

Computer skills

- Good knowledge of Microsoft, Apple and Linux and its applications;
- Good knowledge of the programs Office TM (Word TM, Excel TM and PowerPoint TM);
- Good ability to browse the Internet;
- Knowledge of design software for 2D and 3D CAD: AutoCAD, ThinkDesign, SolidWorks, Pro/ENGINEER CATIA;
- Matlab and LadderDiagram and SFC for PLC;
- Knowledge of programs for the interfacing of laboratory instruments such as LabVIEW;
- Good knowledge of computer architecture and Operating systems;
- Good knowledge of programming languages such as: Fortran, Pascal, C++ (basic level), Java, Basic, HTML, developed in the University.

Driving license

AB

1. Acevedo M., Ceccarelli M., Carbone G., Cafolla D., "Complete dynamic balancing of a 3-DOF spatial parallel mechanisms by the application of counter-rotary counterweights", EUROMECH Colloquium 524, University of Twente, Netherlands, 2012.
2. Cafolla D., Tedeschi F., Carbone G., "Design and simulation on Cassino Hexapod II", in Proceedings of the 3rd IFToMM International Symposium on Robotics and Mechatronics (ISRM 2013) Singapore, 2013, pp. 3-12.
3. Tedeschi, F., Cafolla, D., Carbone, G., "Design and operation of Cassino Hexapod II", in Proceedings of RAAD 2013, 22th International Workshop on Robotics in Alpe-Adria-Danube Region, Portoroz, Slovenia, 2013, pp. 94-101.
4. Cafolla D., Carbone G., "A study of feasibility of a human finger exoskeleton", Service Orientation in Holonic and Multi-Agent Manufacturing and Robotics, Studies in Computational Intelligence, Springer, Vol.544, pp. 363-372, 2014.
5. Cafolla D., Acevedo M., Ceccarelli M., "Static and Dynamic Balancing of a Parallel Manipulator", Edizioni Accademiche Italiane, ISBN: 978-3-639-65873-6, 2014.
6. Cafolla D., Ceccarelli M., I-Ming C., "Characterization of human Torso behaviour", in Proceedings of the 3rd IFToMM Asian Conference on Mechanism and Machine Science (Asian MMS 2014) Tianjin, China, 2014, paper BM& MWD-4.
7. Cafolla D. , Ceccarelli M. , "Design and simulation of Humanoid Spine", New Trends in Mechanisms and Machine Science, Springer Dordrecht, 2014, pp.585-593. DOI 10.1007/978-3-319-09411-3_62.
8. Cafolla D., Ceccarelli M., "Design and FEM Analysis of a Novel Humanoid Torso", Multibody Mechatronic Systems, Mechanisms and Machine Science 25, Springer, Dordrecht, pp. 477- 488, 2014, DOI 10.1007/978-3-319-09858-6_45,.
9. Cafolla D. and Ceccarelli M., "Experimental Inspiration and Rapid Prototyping of a Novel Humanoid Torso", in Robotics and Mechatronics, Mechanisms and Machine Science Vol. 37, Springer Dordrecht, 2016, pp.65-74. DOI 10.1007/978-3-319-22368-1_7.
10. Cafolla D. and Ceccarelli M., "Design and validation of a PKM Structure for a Humanoid Torso", in Proceedings of The 14th IFToMM World Congress, Taipei, Taiwan, (DOI) 10.6567/IFToMM.14TH.WC.OS13.122, 2015.
11. Cafolla D., Carbone G., Ceccarelli M., "Balancing of a 3-DOFs Parallel Manipulator", Dynamic Balancing of Mechanisms and Synthesizing of Parallel Robots. Springer, Dordrecht, (DOI) 10.1007/978-3-319-17683-3_8, pp. 173-191, 2015. (Chapter 8)
12. Ceccarelli M., Carbone G., Cafolla D. and Wang M.F., "How to use 3D printing for feasibility check of mechanism design", In Advances in Robot Design and Intelligent Control, pp. 307-315, Springer International Publishing, 2015.
13. Cafolla D., Wang M.F., Carbone G. and Ceccarelli M., "LARMbot: a new humanoid robot with parallel mechanisms", Robot Design, Dynamics and Control: Proceedings of ROMANSY 2016, 21st CISM-IFTToMM Symposium on Robot Design, Dynamics, and Control, pp. 275-284, Springer International Publishing, 2016.
14. Ceccarelli M., Cafolla D., Wang M.F., and Carbone G., "An Overview of the Ongoing Humanoid Robot Project LARMbot", IN: L. Alboul et al. (Eds.): TAROS 2016, LNAI 9716, Springer International Publishing Switzerland 2016, (DOI) 10.1007/978-3-319-40379-3_6, 2016, pp. 53–64."
15. Chaparro Rico B.D.M, Castillo Castañeda E., Ceccarelli M., Cafolla D., Design and Test of Therapy Exercise for Human Arms", in Proceedings of MESROB 2016, Medical and Service Robotics 2016, Paper ID: 3, 2016.
16. Leal-Naranjo J.A., Ceccarelli M., Torres-San Miguel C.R., and Cafolla D., "An experimental characterization of human arm motion", in Proceedings of MESROB2016, Medical and Service Robotics 2016, Paper ID: 4, 2016.
17. Olinski M., Ceccarelli M., Cafolla, D. and Gronowicz A., "An Experimental Characterization of Human Knee Joint Motion Capabilities", In New Trends in Mechanism and Machine Science, Springer International Publishing, 2017, pp. 411-419, (DOI)10.1007/978-3-319-44156-6_42.
18. Olinski M., Gronowicz A., Ceccarelli M., and Cafolla D., "Human motion characterization using wireless inertial sensors", in: New Advances in Mechanisms, Mechanical Transmissions and Robotics, Mechanisms and Machine Science 46, Springer International Publishing AG, 2017, pp. 401-408. (DOI) 10.1007/978-3-319-45450-4_40.

19. Chaparro Rico B.D.M, Cafolla D., Ceccarelli M., and Castillo Castañeda E., "Design and Simulation of an Assisting Mechanism for Arm Exercises", *Advances in Italian Mechanism Science*. Springer International Publishing, 2017, pp. 115-123.
20. Ceccarelli M., Cafolla D., Carbone G., Russo M., Cigola M., Senatore J.L., Gallozzi A., Di Maccio R., Ferrante F., Bolici F., Supino S., Colella N., Bianchi M., Intrisano C., Recinto G., Micheli A.P., Vistocco D., Nuccio M.R., and Porcelli M., "HeritageBot Service Robot assisting in Cultural Heritage", In *Robotic Computing (IRC), IEEE First International Workshop on Robotic Computing for Cultural Heritage (IRCCH 2017)*, Taichung City, Taiwan, 2017, pp. 440-445.
21. Ceccarelli M., Cafolla D., Russo M., Carbone G., "Prototype and Testing of Heritagebot Platform for Service in Cultural Heritage", *New Activities for Cultural Heritage*, Springer, Cham, 2017, pp. 103-112.
22. Ceccarelli M., Cafolla D., Russo M., Carbone G., "Design and Construction of a Demonstrative HeritageBot Platform Advances in Service and Industrial Robotics, *Mechanisms and Machine Science* 49, 2017, 49:355-362.
23. Russo M., Ceccarelli M., Cafolla D., Matsuura D., and Takeda Y, An Experimental Characterization of a Parallel Leg Mechanism for Robotic Legs, Submitted to the 22st CISM IFToMM Symposium on Robot Design, Dynamics and Control (ROMANSY 2018), Rennes, France, 2018.
24. Orozco Magdaleno E.C., Cafolla D., Ceccarelli M., Castillo Castañeda E., and Carbone G., "Experiences for a User-Friendly Operation of Cassino Hexapod III", *Mechanisms and Machine Science*, 2018, 67:205-213.
25. Leon Rodriguez J.F.R., Carbone G., Cafolla D., Russo M., Ceccarelli M., and Castillo Castañeda E., Experiences and Design of a Cable-Driven Assisting Device for Arm Motion, Submitted to the 22st CISM IFToMM Symposium on Robot Design, Dynamics and Control (ROMANSY 2018), Rennes, France, 2018.
26. Gerding E., Carbone G., Cafolla D., Russo M., Ceccarelli M., Rink S., and Corves B., Design of a Finger Exoskeleton for Motion Guidance. Submitted to EUCOMES 2018 - European Conference on Mechanism Science, Aachen, Germany, 2018.
27. Carbone G., Cafolla D., Ceccarelli M., Aydinoglu O., and Demirel M., "Internship Experience for Learning the Operation of a Cable-Driven Robot for Rehabilitation Tasks", 2nd International Symposium on the Education in Mechanism and Machine Science (ISEMMS 2017), Madrid, Spain, 2017. (in print)
28. Russo, M., Ceccarelli, M., Cafolla, D., Matsuura, D., and Takeda, Y., "An Experimental Characterization of a Parallel Leg Mechanism for Robotic Legs" ROMANSY 22 – Robot Design, Dynamics and Control, CISM, Springer, Cham, 2018, pp. 584:18-25.
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33. Russo M., Cafolla D., Ceccarelli M., "Development of LARMbot 2, a novel humanoid robot with parallel architectures", *Mechanism Design for Robotics, Mechanism and Machine Science*, Springer, Cham, 2018, 66:17-24.
34. Gerding E., Carbone G., Cafolla D., Russo M., Ceccarelli M., Rink S., Corves B., "Design and Testing of a Finger Exoskeleton Prototype", *Advances in Italian Mechanism Science, Mechanisms and Machine Science*, Springer, Cham, 68:342-349, 2018.
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37. Carbone G., Cafolla D., Ceccarelli M., Aydinoglu O., Demirel M., "Internship experience for learning the operation of a cable-driven robot for rehabilitation tasks", *Mechanisms and Machine Science*, 2019, 64:195-207.
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42. Cafolla D., "A personalized flexible exoskeleton for finger rehabilitation: a conceptual design", *Advances in Mechanism and Machine Science*, mechanism and Machine Science, Springer, Cham, 73:73-82, 2019.
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44. Orozco Magdaleno E.C., Cafolla D., Castillo Castañeda E., Carbone G., "Gait planning for obstacle avoidance using mecanum wheel *Advances in Mechanism and Machine Science*, mechanism and Machine Science, Springer, Cham, 73: 2391-2400, 2019.
45. Ricciuti P, Di Pardo A, Cafolla D (2019). MeDB: a Portable Clinical Historical Database. In: (a cura di): Marta Mieli, Carlo Volpe, *Connecting the Future*. p. 98-101, ROMA:Associazione Consortium GARR, ISBN: 978-88-905077-9-3, Torino, 4-6 Giugno, doi: 10.26314/GARR-Conf19-proceedings-20
46. Cafolla D, Pavone L (2019). A BCI controlled soft finger exoskeleton fitting patient's needs . In: 3rd ICEHTMC Proceedings. *GLOBAL CLINICAL ENGINEERING JOURNAL*, p. 104, ISSN: 2578-2762, Roma, doi: 10.31354/globalce.v2iSpecial%20Is

Journals

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51. Russo M., Ceccarelli M., Corves B., Hüsing M., Lorenz M., Carbone G., "Design, Construction and Testing of a Gripper for Horticulture products", *Advances in Robot Design and Intelligent Control*, *Advances in Intelligent Systems and Computing*, Springer, Cham, 2016, 540:119-127.
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53. Esquivela E., Cafolla D., Carbone G., Ceccarelli M., and Jáuregui C., *Forces and defects in roll hemming*", *Journal of Manufacturing Processes*, 2016. (submitted)

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60. Chaparro Rico B.D.M., Cafolla D., Ceccarelli M., and Castillo Castañeda E., "Experimental Characterization of NURSE, a Device for Arm Motion Guidance", *Journal of Healthcare Engineering*, vol. 2018, Article ID 9303282, 15 pages, 2018, <https://doi.org/10.1155/2018/9303282>.
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Granted Patents

72. Cafolla D., Ceccarelli M. "Artificial torso for humanoid robots", Italian Patent No. IT102015000032902, February 2018.
73. Ceccarelli M., Cafolla D., Giuseppe C. and Wang, M. F. "Mechanical structure of humanoid robot with parallel mechanisms", Italian Patent No. 102015000062714, February 2018.
74. Russo M., Cafolla D., and Ceccarelli M, "Device for tripod leg", Italian Patent No. 102016000097258, March 2019.
75. Cafolla D., Ceccarelli M., Russo M., and Carbone G., "Device with legs and helices", Italian Patent No. 102016000103321, March 2019.
76. Chaparro Rico B.D.M., Ceccarelli M., Cafolla D., and Castillo Castañeda E., "Device for arm motion assistance", Italian Patent No. 102016000107499, March 2019.
77. Gerding E., Ceccarelli M., Carbone G., Russo M., Cafolla D., "Mechanism for a finger exoskeleton", IT 102018000003847, April 2020.
78. Ceccarelli M., Carbone G., Cafolla D., Russo M., Espinosa García F.J., Arias Montiel M., Lugo González E., "Mechanism for robotic hand", Italian Patent No. 102018000002785, May 2020.

Under Consideration patents

79. Cafolla D., Chaparro Rico B.D.M., Russo M., and Carbone G., "Portable wire-driven rehabilitation device", Italian Patent No. 102018000006386, June 2018.
80. Cafolla D., Di Pardo A., and Maglione V., "Controlled environment for behavioural analysis and monitoring of the animal's physical parameters with motion-sensitive floor", Italian Patent No. 102018000010460, November 2018.
81. Cafolla D. and Sebastiano F., "Implantable device for monitoring the evolution of restenosis", Italian Patent No. 202020000001102, March 2020.
82. Cafolla D. and Chaparro Rico B.D.M., "Implantable device for monitoring the evolution of restenosis", Italian Patent No. 202020000002161, May 2020.

Honour and awards

Young Delegates Program Award, 3rd IFToMM International Symposium on Robotics and Mechatronics (ISRM 2013), Singapore, 2013.

Young Delegates Program Award, Summer School on Micro- and Macro Mechanisms Design Mechatronics and Robotics, University Politehnica Timișoara, Romania, 2014.

Make Your Idea, Bic Lazio in collaboration with CNA, DWS System, ROLAND dg and AFM Tassone, Latium, Italy, 2017.

Service Award, 6th International workshop on New Trends in Medical and Service Robotics (MESROB 2018).

Service Award, 2nd International Conference of IFToMM ITALY (IFIT 2018).

Finalist Best Paper Award, 15th IFToMM World Congress 2019.

Other information

European Computer Driving License (ECDL). Maximum availability for locations, duties and working hours Interests in technology development, information technology and in robotics. Available, friendly and helpful.

Experience in managing laboratory and study groups.