PERSONAL INFORMATION

Roberto Francesco Pitzalis

PREFERRED JOB POSITION

Mechanical Engineer (Automation and Mechatronics area)

WORK EXPERIENCE

September 2022 to date

Teaching support (88 h)

University of Genoa, Polytechnic School
Via all'Opera Pia, 15, 16145, Genova (GE), Italy,
https://campus-laspezia.unige.it/cdl-ingegneria-meccanica/ ,
https://campus-laspezia.unige.it/cdl-ingegneria-nautica/
Degree in Mechanical Engineering and Nautical Engineering for teaching the subject Industrial Technical Drawing, SSD: ING-IND/15.

September 2021 to November 2021

Mechanical engineer

ADVR-Advanced Robotic Research Line, Istituto Italiano di Tecnologia
Via San Quirico, 19D, 16163, Genova, Italy
Advanced Robotics | Home (iit.it)
Development of novel wearable robotic components and technologies. Mainly focused on exoskeletons for human augmentation and rehabilitation.
Robotics and human interaction

August 2020 to September 2021

Mechanical engineer

IGM Srl, Electromechanical & Electronics Systems
Via Trieste, 22, 19020 Follo (SP)
https://www.igm-online.it/
Research and development of new electromechanical solutions for railway applications, in particular brake and traction master controller. Drawn up technical specifications, operative procedures, bills of materials.
Railway, space and defence

October 2019 to March 2020

Research Internship

EPFL-LMTS, Soft Transducers Laboratory, Ecole Polytechnique Fédérale de Lausanne
Rue de la Maladière 71b, CP 526, CH-2002 Neuchâtel, Switzerland
https://www.epfl.ch/labs/lmts/
ElectroHydroDynamics pumps design optimization to increase performance in terms of hydraulic power density, pressure and flow rate.
Advanced Manufacturing Systems and Mechatronics

May 2017 to July 2017

Mechanical Engineer Internship

Mectron S.p.A,
Rue Loreto 15A, 16042 Carasco (GE), Italy.
https://mectron.it/
Optimization tests of pre-stress for piezoelectric transducers used in the medical and dental surgical field.

EDUCATION AND TRAINING

November 2021 to date

Ph.D student in Mechanical Engineering
Research, design and development of new solutions for human assistance. In particular exoskeletons for occupational and industrial purposes. Under the project INAIL-Esoscheletro Collaborativo, I have been designing a novel exoskeleton for human wrist assistance.

September 2017 to March 2020

Master of science degree in Mechanical Engineering-Design and Production Mechatronics-LM33; 110/110 cum laude

UNIVERSITÀ DEGLI STUDI DI GENOVA

University of Genoa, Polytechnic School
Via all'Opera Pia, 15, 16145, Genova (GE), Italy
www.meccanica.unige.it

September 2014 to July 2017

Bachelor of science degree in Mechanical Engineering-Automation and Mechatronics-CL9; 110/110 cum laude

UNIVERSITÀ DEGLI STUDI DI GENOVA

University of Genoa, Polytechnic School
Via all'Opera Pia, 15, 16145, Genova (GE), Italy
www.meccanica.unige.it

September 2009 to July 2014

Scientific-Technological High School Diploma. Final grade: 100/100
I.I.S "G. Capellini-Sauro "
Rue Giacomo Doria 2 (La Spezia)
www.capellinisauro.gov.it

PROJECTS

- 2021 to date, *Esoscheletro Collaborativo 2 (EC2)*, IIT research initiative funded by INAIL;
- 2011-2012, Underwater wire-guided R.O.V - Project SeaPerch.

PUBLICATIONS

- 2024 – Gallerani M., Pitzalis R. F., De Novi G., Ottensmeyer M. P., and Berselli G. *Integrated Design and Prototyping of a Robotic Head for Ocular and Craniofacial Trauma Simulators.* The International Journal of Medical Robotics and Computer Assisted Surgery (11th July 2024, Submitted)
- 2024 – R. F. Pitzalis, A. Giordano, A. Di Spigno, A. Cowell, O. Niculita, and G. Berselli. *Application of Augmented Reality-based Digital Twin approaches: a Case Study to Industrial Equipment*. International Journal of Manufacturing System (17th June 2024, Submitted)
- 2024 – Mariano F., Pitzalis R. F., Monica L., Ortiz J. and Berselli G. *Traditional vs Generative Design Optimization for Novel Wrist Exoskeleton*. In. IEEE/ASME MESA, 20th Int. Conference on Mechatronic, Embedded Systems and Applications, 2-4 September, Genoa, Italy.
- 2024 – Pitzalis R. F., Cartocci N., Di Natali C., Caldwell D. G., Berselli G., & Ortiz J. *Development of a ML-Control Strategy for a Wrist Exoskeleton based on EMG and Force measurements with Sensor Strategy Optimisation.* In: 10th IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob). IEEE, 1-4 September, Heidelberg, Germany.
- 2024 – Pitzalis R. F., Cartocci N., Di Natali C., Monica L., Caldwell D. G., Berselli G., & Ortiz J. *Ergonomic Assessment of Work Activities for an Industrial-oriented Wrist Exoskeleton*. In: 22nd Triennal Congress of the International Ergonomics Association (IEA), 25-29 August, JEJU, Korea.
- 2024 – A. Di Spigno, A. Giordano, R. F. Pitzalis, A. Cowell, O. Niculita, and G. Berselli. *Towards the adoption of Augmented Reality-based Digital Twin approaches in real industrial scenarios.* Springer Proceedings in Advanced Robotics. European Robotic Forum, 13-15 March, Rimini, Italy.
- 2024 – Nicholas Cartocci, Roberto F Pitzalis, Jesús Ortiz, Jesse Jaramillo, Tansel Yucelen, Mario L Fravolini. *Directional thrust control of a powered wingsuit for assisted gliding.* AIAA SCITECH 2024 Forum, pp. 754.
- 2023 – Pitzalis, R. F., Park, D., Caldwell, D. G., Berselli, G., & Ortiz, J. *State of the Art in Wearable Wrist Exoskeletons Part II: A Review of Commercial and Research Devices.* Machines, 12(1), 21.
- 2023 – Nicholas Cartocci, Roberto F Pitzalis, Jesús Ortiz, and Mario L Fravolini. *Bidirectional assistive logic for longitudinal glide dynamics of a wingsuit.* I-RIM Conference Proceedings, October 20-22, Rome, Italy.
- 2023 – Pitzalis, R. F., Park, D., Caldwell, D. G., Berselli, G., & Ortiz, J. *State of the Art in Wearable Wrist Exoskeletons Part I: Background Needs and Design Requirements.* Machines, 11(4), 458.
- 2022 - Pettinato, S., Pitzalis, R. F., Ortiz, J., & Berselli, G. *Modeling of Cutting Operations for Robotic Surgery Using CAE Tools.* In: Advances on Mechanics, Design Engineering and Manufacturing IV: Proceedings of JCM 2022, June 1-3, Ischia, Italy (pp. 192-203).

HONOURS & AWARDS

- 2022, Best Young Research Paper Award – JCM Conference
- 2020, Master thesis award in "Mechatronics for Industry 4.0" promoted by Lions Club La Spezia host.
- 2017-2018, Scholarship - Top 8 University students, Mechanical Engineering Department (DIME)
- 2016-2017, Scholarship - Top 8 University students, Mechanical Engineering Department (DIME)

PERSONAL SKILLS

Mother tongue(s): Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2-Upper Intermediate	B2-Upper Intermediate	B2-Upper Intermediate	B2-Upper Intermediate	B2-Upper Intermediate
French	A2-Basic user	A2-Basic user	A2-Basic user	A2-Basic user	A2-Basic user

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills
- Good communication skills gained through my experience as student and worker;
- Capability to listen and interact on group activities;
- Open minded, embracing challenges and innovation;

Organisational / managerial skills
- Autonomy and problem solving gained through work and research experiences;
- Leadership gained in leading small project at University;
- Excellent schedule skills, well organized and keen on details;

Computer skills
- 3D CAD software (PTC-Creo, Catia V5, AutoCAD 2019); ANSYS Workbench
- MATLAB/Simulink/Simscape; LabVIEW;
- C, C++ programming skills;
- Graphics (basis): Photoshop, Illustrator, InDesign, Inkscape
- Microsoft Office™ tools;

Other skills
- MEMS fabrication in Clean Room environment;
- Rapid prototyping using 3D printer, laser cutting and engraving;
- Biomechanical sensors use and integration (XSens, EMG, ECG);
- Scanner 3D *Sense*;
- Laboratory instrumentation: tin soldering iron, voltmeter, impedance meter, oscilloscope, HV-power supplies, fume-hood, optical microscopes.

Driving licence
- A1, A, B

ADDITIONAL INFORMATION

Memberships
- Italian register of engineers.

References
- IIT, Researcher Jesús Ortiz, jesus.ortiz@iit.it
- Unige, Prof. Giovanni Berselli, giovanni.berselli@unige.it
- EPFL, Prof. Herbert Shea, herbert.shea@epfl.ch

ANNEXES

I authorize the use of my personal data pursuant to Legislative Decree of 30th June 2003, n. 196 "Code concerning the protection of personal data" and the GDPR (EU Regulation 2016/679).
- Certificate of RAMS analysis course (26h)
- Certificate of attendance at English Course level C1 (50h) at IH Newcastle-Upon-Tyne (UK);
- Certificate of attendance at the course Business English;

Signature