Francesco **Paissan**

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Experience

Junior Researcher
Trento, Italy

E3DA Unit - Bruno Kessler Foundation — *Oct. 2018 - Present*

- Research in the fields of machine and deep learning for computational and energy constraint devices;
- Development of Smart Vision Sensors for on-chip pixel processing;
- **Derivables:** 7 conference papers (1 under review), 2 papers in a transaction, 9 papers in international workshops.

Research Intern
Montreal

Montreal Institute of Learning Algorithms (MILA) — *5 Sept. - Present*

- Research and development on scaling neural architectures on tiny devices, in particular for speech processing applications;
- Research on novel techniques for self-supervised learning in the EEG domain;
- **Derivables**: contributions to open-source toolkit SpeechBrain, 1 pre-print, 1 conference paper (under review).

Scientific collaborator / Member
Rome, remotely

LEGEND Experiment - National Institute for Nuclear Physics — *Jan. 2021 - Present*

- Development firmware for amplifier card for SiPM read-out in the liquid argon veto;
- Design of ML-based trigger logic for real-time rejection of muon-induced scintillation in 40Ar;
- **Derivables:** 1 journal paper, 2 conference papers, internal notes for collaborators, experiment's slow control.

Software developer
Partially remote

Roma Tre University, co-funded by Italian Space Agency (ASI) — *Jan. 2022 - Apr. 2022*

- Development of data acquisition systems for a project of the Italian Space Agency (ASI).

Software developer for robotics
Rovereto, Trento

Witted Srl — *2016*

- Development of the ArcheoROV project, an underwater drone;
- Development of a ROS-based autonomous control system and software architecture for drone control via wireless and wired communication;
- **Derivables:** 1 pre-print manuscript, robot prototype.

Education

University of Trento
Trento

B.S. in Computer Engineering — *Sept. 2023 - Current*

International Summer School for Young Physicists (ISSYP)
Ontario, Canada

Perimeter Institute — *2018*

Academic activities

2023	**Seminar,** "tinyML: neural networks design principles, scaling strategies and beyond"	*University of Padua*
2023	**Seminar,** "Hands-on tinyML for IoT, bringing intelligence to the edge"	*IEEE WFIoT*
2022	**Seminar,** "Emerging opportunities of machine learning in physics"	*INFN Roma3*
2022	**Task coordinator,** DCASE "Low-Complexity Acoustic Scene Classification" task	
2018-	**Reviewer,** journals and conferences in ML, bio-signal processing and embedded systems	

Selected publications

A. Ancilotto, F. Paissan E. Farella, "*XiNet: Efficient Neural Networks for tinyML* ", ICCV. — *2023*

F. Paissan, A. Ancilotto, E. Farella, "*PhiNets: a scalable backbone for low-power AI at the edge*", ACM TECS — *2021*

Skills

Programming	C/C++, (Embedded) C, MongoDB, Dart, Flutter, ROS, Git, GPIB protocol
Scientific computing	Python, Mathematica, MATLAB, R (beginner)
AI/ML frameworks	PyTorch, TensorFlow, Keras, Scikit-learn, Speechbrain
Embedded platforms	ARM Cortex series, Beaglebone, Raspberry Pi, ASUS Tinkerboard, Arduino