europass Curriculum vitae

PERSONAL INFORMATION

Pietro Pennestrì

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Date of birth May 3rd 1996 | Nationality Italian

WORK EXPERIENCE

Oct. 2021 – Nov. 2021 — Teacher Assistant for *Digital hardware*

University of Twente, The Netherlands

Assisting students to develop `VHDL` code and FPGA programming

Sept. 2021 – Oct. 2021 — Teacher Assistant for *Computer architecture and organization*

University of Twente, The Netherlands

Assisting students with homework

EDUCATION AND TRAINING

Sept. 2019 – Feb. 2022 — Master Embedded Systems

University of Twente, The Netherlands

Thesis Title: An FPGA Based Sensor Fusion Algorithm for IMU Data Processing

Download: https://pennestri.me/msc-thesis

Sept. 2015 – March 2019 — Bachelor of Science in Electronics Engineering

University of Rome Sapienza, Italy.

Thesis Title: *Automatic License Plate Recognition by means of Machine Learning & Computer Vision*

Download: https://pennestri.me/license-plate-recognition

Grade: 100/110

June 2015 — Diploma of secondary cycle of studies

Liceo Scientifico Statale Isacco Newton, Rome Italy

Final Project: *Smart Ethylometer With Arduino - How to develop your own ethylometer from scratch* . The project was awarded with 1st prize on a national contest organized by skuola.net

Download: https://pennestri.me/mq3

Grade: 100/100

LANGUAGE CERTIFICATIONS & COURSES

August 2019 — **Dutch language course: Summer Intensive Dutch (A1)**

Certificate of Attendance. UT Language Centre

March 2018 — **IELTS - Academic**

Report Form Number: 17IT007318PENP264A

Listening: 7.0, **Reading**: 6.5, **Writing**:6.0, **Speaking**: 7.0

Overall Band Score: 6.5

Summer 2015 — **German Course Level A2**

International House Heidelberg

Summer 2014 — **German Course Level A1**

International House Heidelberg

Summer 2013 — **German Course Level A1**

International House Heidelberg

CONFERENCES & INVITED LECTURES

- Creativity in STEAM Education Conference, Johannes Kepler University, Linz (Austria), April 19-20 2018 https://goo.gl/d6eZBq . Title of presentation: **Web Teaching Tools in Electromagnetism** http://maxweb.science/waveguides/rectangular/. The software tool developed is one of few examples exploiting **Django** framework for scientific computing.

- **Invited Lecture** at Mascheroni High School (Bergamo) Mascheroni Day 2014 https://pennestri.me/fondamenti-di-geometria-del-compasso

- 2014 GeoGebra International Conference in Budapest. Presentations titles:

  - **Classical Greek Geometry Problems Solved by Means of GeoGebra**.

    https://pennestri.me/classical-greek-geometry-problems-means-geogebra

  - **Simulation of Curve Tracing Linkages**

    https://pennestri.me/simulation-curve-tracing-linkages

- Summer School 2013-San Pellegrino Terme. **Invited Speaker**. Title of presentation: **On the shoulders of Giants: Mascheroni and Descartes from the point of view of two high-school students** https://pennestri.me/summer-school-2013-san-pellegrino-terme

- International GeoGebra Conference, Varsavia, September 2012. **Invited Keynote Speaker** *Examples of Advanced Student Work with GeoGebra* https://pennestri.me/warsaw-igi-2012.

- DI.FI.MA. Conference 2012 - Torino. Title of presentation: GeoGebra work for high school students. https://pennestri.me/difima-2012

- EXPO Science Tula (Russia) Member of Italian team https://pennestri.me/expo-science-tula-2012

- DI.FI.MA. Conference 2011 - Torino. Title of presentation: **Mascheroni meets GeoGebra** https://pennestri.me/difima-2011

PARTICIPATION TO SCIENCE CONTESTS

- 2015: First prize at the national contest **Best High School Final Year Report**. The contest was organized by skuola.net. https://www.skuola.net/scuola/tesine-concorso-vincitori.html https://pennestri.me/mq3

- 2012: "I Giovani e le Scienze 2012" (**Young People and Science 2012**) supported by the European Union. My group presented a project focused on Compass Geometry. The Group was awarded to represent Italy at Tula (Russia) Expo Science. https://pennestri.me/i-giovani-e-le-scienze-2012-milano

COLLABORATIONS

January 2012 - March 2012 Collaboration with ENI Scuola. Creation of educational material for high school students.

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	B2	C1	C1	B2
French	B2	B2	B2	B2	B1
German	A2	A2	A2	A2	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Technical Expertise

- **Operating Systems**: Windows, Linux Ubuntu (Desktop and Server), Mac OS X
- **Programming Languages**: Python, Matlab/Simulink, Javascript, html, php, MySQL, C, Processing, Haskell.
- **Typesetting system**: LaTeX, MS Office
- **Graphics & Multimedia**: Adobe After Effects, Adobe Illustrator, Adobe Photoshop.
- **CAD**: Solidworks, AutoCad, Eagle, Autodesk Inventor.
- **HDL Languages**: VHDL, Verilog, Clash.
- **Electronic design automation (EDA)**: Ngspice, PSpice, sapwin, TINA, Deeds, Quartus, QuestaSim, ModelSim, Synopsys Design Compiler.
- **Math Software**: Maple, Maxima, Matlab, GeoGebra.
- **Website development**: Joomla, WordPress and Django.
- Capability to develop, deploy and maintain scientific oriented web platforms.
- Experience of computer vision library **OpenCV**.
- Experience of Machine Learning (**TensorFlow**).
- Knowledge of SPI, I2C and UART protocols.
- Familiar with `git` version control system.

PERSONAL PROJECTS

Computer Arithmetic ET4170 Final Project
https://pennestri.me/computer-arithmetic-et4170-the2021

GFS: The GFSK Receiver
https://pennestri.me/idsp-course-assignments

TRA: Data-Flow Graphs Transformations
https://pennestri.me/idsp-course-assignments

MAP: Mapping Data-Flow Graphs to RTL Designs
https://pennestri.me/idsp-course-assignments

Final Soc Course Project: Continuous-Time Sigma-Delta Adc
Responsible for the design of digital filters. https://pennestri.me/final-soc-course-project-continuous-time-sigma-delta-adc

Hardware-Software Co-Design With The Nios II Processor
https://pennestri.me/project-nio-hardware-software-co-design-nios-ii-processor

Project Ver: Verification Techniques
https://pennestri.me/project-ver-verification-techniques

Project Pow: Low-Power Design
https://pennestri.me/project-pow-low-power-design

Project Dat: Data-Path-And-Controller Systems
https://pennestri.me/project-dat-data-path-and-controller-systems

Project Tes: Introduction To Testable Design And Testing
https://pennestri.me/project-tes-introduction-testable-design-and-testing

Project Syn: Introduction To VHDL Synthesis
https://pennestri.me/project-syn-introduction-vhdl-synthesis

Introduction To VHDL And VHDL Simulation
https://pennestri.me/introduction-vhdl-and-vhdl-simulation

Color Tracking With Jetson Nano And FPGA
https://pennestri.me/color-tracking-jetson-fpga

Article Review: A SAR-Assisted Two Stage Pipeline ADC
https://pennestri.me/sar-assisted-two-stage-pipeline-adc

The implementation of a simple stack processor in Clash
https://pennestri.me/embedded-computer-architecture-2

The implementation of a FIR and IIR filter in Clash
https://pennestri.me/embedded-computer-architecture-2

The implementation of a polynomial evaluator in Clash

https://pennestri.me/embedded-computer-architecture-2

Programming Of A Matrix Operation On Artix 7 Family Fpga
https://pennestri.me/programming-matrix-operation-artix-7-family-fpga

Web Teaching Tools In Electromagnetism
https://pennestri.me/web-teaching-tools-electromagnetism

Python And Ngspice
https://pennestri.me/python-and-ngspice

Lagrange Multipliers
https://pennestri.me/disamina-di-metodi-di-ottimizzazione-fondati-sullimpiego-dei-moltiplicatori-di-lagrange

Numerical Algorithms and Matlab Codes
https://pennestri.me/calcolo-numerico

Measurement of the internal resistance of a voltage source
https://pennestri.me/misura-resistenza-interna-generatore-di-tensione

SPORT & HOBBIES

- Karate, Black Belt 1st Dan
- Vintage Cameras Collector
- Digital macro photography
- 3D Printing

ADDITIONAL INFORMATION

Publications P. Pennestrì, F. Fabrizi *La Nuova Geometria del Compasso* (**The New Compass Geometry**), https://pennestri.me/la-nuova-geometria-del-compasso.

The book reports more than one hundred compass geometry constructions with GeoGebra. It reproduces the work of the Italian geometer Lorenzo Mascheroni (1750-1800).