

I develop C++ software for device control on Linux and rover data transfers. My work also covers satellite communications models in MATLAB/Simulink, Unity/C# simulation and Python navigation. Italian citizen based in Germany. Open to starting as soon as possible.

Relevant Experience

- Feb 2026 to present **Embedded Software Engineer**, VersoSat, Italy, remote
Part-time collaboration.
- Developed a C++ control library on Linux from the team's hardware-access wrapper, with register access, state checks and callbacks.
 - Verified state checks, command writes and callbacks with simulated registers. A local Userspace I/O test confirmed register access. Cross-compiled for AArch64 before target-board integration.
 - Adapted MathWorks DVB-S2 transmitter models in MATLAB/Simulink and resolved a fixed-point scaling mismatch. Completed short simulation and separate block-level HDL generation and synthesis.
- Nov 2021 to present **Robotics Software Engineer**, Tumbleweed Mars, Netherlands, remote
Part-time collaboration.
- Built a C++/Linux prototype to retain rover data between satellite contacts. Verified recovery after lost acknowledgements, restarts and missed windows, with no duplicate stored records in local tests.
 - Developed a Unity/C# rover simulator with configurable motion, virtual sensors and data export.
 - Implemented encoder-aided Kalman filtering in Python, reducing mean position error by 70.1% across 50 paired controlled-simulation runs.
- Oct 2023 to present **Research Software Engineer**, FAU Erlangen-Nürnberg, Germany
Contract.
- Built C++ data-export tools and a PyTorch pipeline for 3.1 million detector images, preserving event identities between stages. Added input checks and limits on binary output size.
 - Built a clustering and model-comparison pipeline that shortlisted eight regions from 48 candidate groups in satellite data.
- Sep 2022 to Aug 2023 **Data Scientist, internship**, INFN Pisa, Italy
Built a Python signal-analysis pipeline for 14 years of satellite measurements. Combined statistical tests with background-model checks to produce confidence bounds for model validation.
- May 2021 to Jun 2023 **Instrumentation Project Lead**, University of Pisa, Italy
Secured funding and led the team that designed and built a solar tracker and spectrometer for measurements aboard a stratospheric balloon.

Technical Skills

- Device software C++, Linux, libmetal, memory-mapped registers, state machines, mutexes, callbacks, unit tests and AArch64 cross-compilation
- Models and data MATLAB/Simulink, fixed-point modelling, Unity, C#, sensor fusion, Python, PyTorch, NumPy, SQL, regression testing and Git

Open Source

- PUDL Added three energy-storage tables, a database migration and validation checks. [Merged contribution.](#)
- CLIMADA Preserved forecast dates and tested explicit and default import paths. [Merged contribution.](#)
- AstroCLIP Packaged an existing model for standard loading and checked output parity. [Hugging Face package.](#)
- MetNet-3 Added forecast lead-time conditioning in PyTorch with regression tests. [Merged contribution.](#)

Education

- Oct 2023 to present **PhD in Physics**, FAU Erlangen-Nürnberg, Germany
Thesis writing. Machine learning and statistical model validation.
- Oct 2026 to Feb 2027 Advanced Machine Learning coursework, LMU Munich.
- Sep 2020 to Jul 2023 **M.Sc. in Physics**, 109/110, University of Pisa, Italy
- Sep 2017 to Sep 2020 **B.Sc. in Physics**, 102/110, University of Pisa, Italy
- Certification AWS Certified Machine Learning Engineer, Associate, September 2026
- Languages Italian native, English full professional proficiency, German limited working proficiency