

# Nicolò Valigi



Hello! I love crafting simple but high-performance systems, especially in Machine Learning and Robotics. It's fun to think from individual bytes of memory all the way to thousands of CPUs. At Apple, I have been managing a small team while doing significant technical contributions, and would enjoy the same.

## EXPERIENCE

---

### Apple - Staff ML Engineer & Engineering Manager 2020 – Present

- Latency optimization, fine-tuning, and LoRA's for LLMs on a mixed Pytorch and JAX ecosystem.
- Previously, Reinforcement Learning for behavior planning in Robotics. My team owned on-board inference and performance.
- ML model inference on open-source and proprietary Apple platforms. Contributed to ML compiler and runtime based on Clang/MLIR. Implemented kernels for CUDA and Metal (Apple's CUDA).
- Ported Python/Pytorch training code to low-latency and maintainable C++.
- *Most proud of:* supporting a wonderful team doing cutting-edge things.

### Cruise Automation - Senior Software Engineer 2017 - 2020

- As part of the Robotics Frameworks team, worked on core C++ libraries used by hundreds of engineers to allow inter-node communication and configuration.
- Member of the (unofficial) C++ compiler and language police, ensuring good coding practices, mentoring others on advanced features, and troubleshooting performance issues.
- *Most proud of:* switching the C++/Python/ROS monorepo to Bazel with distributed compilation, saving millions of hours of waiting on CMake [[watch talk](#)].

### Airware - R&D Engineer 2015 - 2016

- Owner of visual-inertial localization on the autonomous drones (ie allowing flight using on-board cameras alone).
- Built a prototype of the sensor hardware, developed optimized C++ code for tracking images and geometry, and collected testing data to validate accuracy.
- *Most proud of:* accurate joint timestamping of accelerometer and camera using a self-synchronizing clock.

## EDUCATION

---

### Master's in Aerospace Engineering Scuola Superiore Sant'Anna & University of Pisa

- Graduated with 110/100 and Honors. Research stints at NASA, EPFL, and ETH.

## EVERYTHING ELSE

---

- Known to find ingenious solutions to thorny problems. Ask me about my janky Pytorch-to-C++ “com-piler”.
- I like C++ more than Python, but have always worked with both.
- I helped found a company to improve sleep tracking with wearable devices using ML.