**Education**

**HARVARD UNIVERSITY** Cambridge, MA

B.S. Electrical Engineering. Minor in Computer Science. GPA 3.8 May 2021

Relevant Coursework: Big Data Systems (grad) • Advanced Computer Networks (grad) • Operating Systems • Systems Programming and Machine Organization • Machine Learning • Mathematical Programming & Optimization • Probability • Discrete Math for CS • Linear Algebra • Multivariable Calculus • Signals and Systems • Feedback and Control • Circuits and Electronics • Electronic and Photonic Devices • Quantum Physics • Econometrics.

**ISTITUTO LEONE XIII** Milan, Italy

High School diploma in Classics. Final grade 100/100 July 2017

Main Coursework: Ancient Greek, Latin, History, Philosophy, Literature

**VASHON ISLAND HIGH SCHOOL** Seattle Area, WA

Exchange Student. GPA 4.0 Sept. 2015 – July 2016

SAT: 1520/1600. SAT Subject Tests: 800 (Math II), 800 (Physics), 800 (Latin)

**Research and Teaching Experience**

**UNIVERSITY OF CALIFORNIA, BERKELEY** Berkeley, CA

**Undergraduate Researcher with Prof. Ion Stoica @ Real-time Intelligent Secure Explainable systems (RISE) Lab** June – August 2020

* Improved the throughput of cluster-computing framework Ray by pipelining the submission of tasks to worker nodes
* Used a work-stealing mechanism to rebalance work among worker nodes
* Tested the code, measured performance, and committed to Ray’s open-source repository, with 13.7K stars on Github
* Presented the work with a poster at the Fall 2020 Poster session at the RISE Lab

**HARVARD SCHOOL OF ENGINEERING AND APPLIED SCIENCES** Cambridge, MA

**Undergraduate Researcher with Prof. Minlan Yu** Sept 2020 – Present

* Contribute to the design and implementation of a low-overhead in-band network telemetry framework for programmable switches
* Implement a distributed filtering mechanism, together with a change-detection data-structure to filter out redundant network telemetry
* Improve the INT framework to minimize the reports sent to collectors
* Write an undergraduate thesis (work in progress) with title “Probabilistic In-band Telemetry CHeckER (PITCHER)”

**Undergraduate Researcher with Prof. Eddie Kohler** May 2019 – June 2020

* Developed a user-level networking stack for Lua adapting open-source library picoTCP and integrating it with Lua’s coroutine-based non-preemptive multitasking
* Wrote code to help support live migration of Lua-based FaaS without interrupting active TCP connections
* Designed a benchmarking suite to measure network metrics such as throughput and latency and facilitated optimization of such values
* Design and implement a single-threaded, multiclient HTTP server in Lua that can be live-migrated and that supports the WebSocket protocol
* Designed a Juice-based IoT platform as a case study
* Wrote and debugged large codebase in C, C++, Lua and Python.
* Co-authored a paper titled “Juice: Concentrated Application State for Stateful Serverless Platforms,” submitted to NSDI ‘21

**Teaching Assistant with Prof. David Malan** Aug. – Dec. 2018

* Teaching Assistant for Harvard’s Introductory Computer Science course, CS50.
* Lead weekly 1h15min-sections to a group of ~20 students, hold office hours, grade problem sets and exams
* Contribute to hosting & organizing course-wide events such as the CS50 Puzzle Day, the CS50 Hackathon and CS50 Fair, where students showcase their final projects.

**POLITECNICO DI MILANO** Milan, Italy

**Undergraduate Researcher with Prof. Andrea Bonarini @ Artificial Intelligence and Robotics Lab (AirLab)** May – Aug. 2018

* Contribute to a state-of-the-art machine learning framework to enable moving robots to track moving entities and detect humans
* Design and implement a detection algorithm based on a mixture of gaussian processes (MGP)
* Train the detection algorithm using LIDAR data from a custom-designed robot named *Tryskar*
* Write code in Python and C++ to interface with ROS

**Select Projects**

**Chickadee**  Jan – May 2019

* Designed and implemented a whole multi-core kernel as term-time project for CS 161 at Harvard
* Managed and debugged large codebase in C++ with synchronization
* Implemented virtual memory, buddy allocator, processes, threads, wait queues, file system, disk support, buffer cache, signals and system calls.

**Let’s Meet!**  Nov. – Dec. 2018

* iOS app that enables users to instantly find people with whom they can study, eat lunch and do other activities – all without worrying about bothering people who don’t happen to be available at the same time as you
* Designed front-end of the app in XCode and wrote code in Swift. Set up the backend using a custom MySQL online database and a REST API written in PHP and SQL

**SGAST (Series Graphing and Solving Tool)**  Sept. – Dec. 2016

* Java app that helps high school and college students learn infinite series.
* Designed app in Eclipse, wrote code in Java.

**Skills**

**Natural Languages:** Italian (native), English, Latin, Ancient Greek

**Programming Languages:** C, C++, Python, Java, Lua, P4, PHP, Swift, Stata, AMPL, Mathematica, MATLAB, LaTeX

**Techniques:** Data Structures, Algorithms, Debugging, Operating Systems, Computer Networking, MySQL, REST API, Git