**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 • Computer Architecture (expected, Spring 2021) • Data Structures and Algorithms (expected, Spring 2021) • 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 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 13.8K 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

* Design and implement 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 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
* Wrote and debugged large codebase in C, C++, Lua and Python.
* Secured funding to help support the project by successfully applying for a Harvard College Research Program (HCRP) grant
* 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

* Served as a Teaching Assistant for Harvard’s Introductory Computer Science course, CS50.
* Lead weekly 1h15min-sections to a group of ~20 students, held office hours, graded problem sets and exams
* Participated in the organization of course-wide events such as a CS50 Puzzle Day, a CS50 Hackathon and a CS50 Fair, where students showcased their final projects.

**POLITECNICO DI MILANO** Milan, Italy

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

* Contributed to a ML framework to enable moving robots to detect and track people in their surroundings
* Designed and implement a detection algorithm based on a mixture of gaussian processes (MGP)
* Trained the detection algorithm using LIDAR data from a custom-designed robot named *Tryskar*
* Wrote 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

* Designed an iOS app to help students find peers who are available to study, eat lunch and do other activities
* Implemented the app using Swift. Operated a custom MySQL database backend interfaced by a REST API frontend written in PHP and SQL

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

* Designed and implemented a Java app to helps high school and college students learn infinite series.

**Skills**

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

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

**Technical**: Distributed Systems, Operating Systems, Data Structures & Algorithms, Databases, NoSQL, Networking, Programmable Switches