Sumer Kohli

/in/sumerkohli | sumer.kohli@berkeley.edu | @firebolt55439
Saratoga, CA 95070 | (408) 621-6422

Education

University of California, Berkeley GPA: 4.00
B.S., Electrical Engineering & Computer Sciences *Aug 2018 – May 2022*

- **Distinctions**: Dean's List (Top 10% of class); Edward F. Kraft Award Winner; Regents Scholarship Finalist
- **Organizations**: Cal Launchpad (AI/ML); Data Science Society of Berkeley; EnableTech@Berkeley
- **Relevant Coursework**: CS61C (*Computer Architecture*); CS61B (*Data Structures & Algorithms*); CS61A (*Foundations of Programming*); EECS16A/B (*Electronic Systems & Devices I & II*, TA for Fall 2019); Math 53 (*Multivariate Calculus*)

Experience

Lawrence Livermore National Laboratory Livermore, CA
Computational Scholar Intern *Jun - Aug 2019*

- Researched and developed a Python-based key-escrow server on AWS and Docker to enable Full Disk Encryption (FDE) on the Lab's 3,500+ Macs, greatly improving operational security in response to escalating state-sponsored cyberattacks.
- Implemented feature-complete audit trail functionality to harden service against possible insider threat and/or abuse.
- Programmed a client-side service in Swift to enforce FileVault enablement on the 3,500+ employees, ensuring compatibility with YubiKey-based multi-factor authentication (MFA) while enabling instant roll-out of critical settings updates.
- Integrated and documented a REST-based API to enable authenticated access to user, machine, and recovery key data.

Nutanix Inc. San Jose, CA
Software Engineer Intern *Jun - Aug 2015 and 2017*

- Developed a performant Python-based back-end to process and store over 1 million product telemetry data points a day.
- Built a fully-featured web interface to efficiently tabulate and visualize gigabytes of product telemetry in near real-time.
- Provided critical insight into adoption, reliability, and userbase characteristics for 2,000+ corporate users of product.
- Implemented reliable logging of core processes in C++, preventing potential catastrophic data loss during cluster imaging.
- Enabled core telemetry via anonymized callhome streams and transmission of crash logs.

Realization Technologies Inc. Cupertino, CA
Software Development Contractor *Jun - Aug 2016*

- Engineered a mobile-first platform to profile and match prospective employers and students based on their preferences.
- Finished product was deployed by more than 50 local organizations over its lifetime.

Projects

SCE Chess May 2016
A blazingly-fast C++ chess engine rated around 2045 ELO, or able to beat over 98% of chess players; employs alpha-beta pruning and a bitboard representation to evaluate nearly 2 million positions per second.

$\frac{d}{dx}$ it! Oct 2018
A web application that instantaneously takes partial derivatives of arbitrary mathematical functions; supports extremely complex input, and computes everything client-side using Scheme and JavaScript (far faster than WolframAlpha!).

Cobra Compiler Sep 2017
An LLVM-based optimizing compiler for my very own object-oriented, Turing-complete programming language; code generation is fully C/C++ ABI-compatible and supports multithreading and custom operators.

Sumer's OS Dec 2016
A Unix-like mini-operating system with scheduling and multitasking support written in C; able to run code in user land and provides a (mostly) POSIX-compliant environment as well as a basic libc runtime.

DreamRL Jan 2019
A CNN-VAE $\rightarrow$ MDN-RNN $\rightarrow$ CMA-ES TensorFlow model co-developed with my Cal Launchpad team; achieved state-of-the-art performance on the CarRacing-v0 OpenAI gym.

Skills

Languages	C/C++, Python, JavaScript/Node.js, Go, Swift, Java, Objective-C, Shell, NumPy & SciPy, R
Technologies	React, AngularJS, Vue.js; MongoDB, MySQL, PostgreSQL; AWS EC2, Docker, Heroku
AI/ML	TensorFlow, Keras, PyTorch; SVD/PCA; CNN's, RNN's, VAE's