Viraj Chhajed

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Education

UCLA - University of California, Los Angeles Fall 2022 - Spring 2025 (*expected*)
Bachelor of Science, Computer Engineering
Tech Breadth: Computational Biology and Genomics
Relevant Coursework: Linear Algebra, Probability and Stats, Multi-variable Calc, Discrete Math, ML, Analog Systems & Signals, Data Structures & Algorithms, Software Construction, Computer Organization, Physiology, Genetics, Molecular Biology

Skills

Languages: Python, R, NumPyro, Bash, Javascript/Typescript, HTML/CSS, NetLogo, Lisp
Low Level: C, C++, X86-64 ASM (AT&T), OpenMP
Frameworks: NumPy, PyTorch, TensorFlow/TFP, JAX, Stable Baselines, React.js, Node.js, Firebase

Experience

Researcher Sept 2023 - Present
The Levin Lab, Tufts University *Boston, MA (remote)*

- Researching computational models of PC (Predictive Coding) and incorporation of PC as localised loss algorithm in SNNs (Spiking Neural Nets) and biologically analogous alternative to backpropagation.

Quantitative Researcher Nov 2022 - Sept 2023
Zaitlen Lab, UCLA *Los Angeles, CA*

- Researched uses of PPLs (Probabilistic Programming Languages) for modelling high dimensional genomics data sets and Inference via Monte Carlo Methods (Markov Chain Monte Carlo/Hamiltonian Monte Carlo).

Co-founder Apr 2021 - Jul 2022
Basch Research LLP - Basch.io *Mumbai, India*

- Built text-to-human-video generator (synthetic media) and AI info-video creator (LipGAN - Generative Adversarial Network, ObamaNet). Achieving over 1 million site impressions, $2000 in revenue and 1500 users, attracting attention from top VC firms including, Accel, Lightspeed, etc, valuing us at over $1 million.

Software Engineering Intern Jul 2020 - Aug 2020
Cemtrex Inc. *New York, NY (remote)*

- Worked with the Augmented Reality team to build a prototype for an AR-based live Quiz show for Premios Juventud, a popular Spanish show (IOS-AR Platform, WebAR, Unity Three.js, AR.js)

Research/Publications

- Leveraging Probabilistic Programming for Flexible Inference in High-Dimensional Statistical Genetics Models (Institute for Quantitative and Computational Biosciences, UCLA)

Projects

- Optimized C code for matmul and other linear-algebra operations involved in image processing to perform multi-core parallel computing using OpenMp and SIMD operations.
- Developed a replica Mario Party game in C++ in a 4-day timeframe, encompassing over 2000+ lines of code.
- Built a mini version control in Python using SHA-1 for hashing, capable of topologically sorting commits (DAGs)
- Performed X86-64 Buffer Exploits, X86-64 Disassembly and Reverse Engineering in GDB