Kunal Gupta

408.515.8657 | kg3163@nyu.edu | https://github.com/kunalguptamain

EDUCATION

New York University Expected June 2026

Bachelor of Science, Computer and Electrical Engineering, Minor in Robotics (Dean's List) GPA: (3.92/4)

- Relevant Courses: Data Structures and Algorithms, Object Oriented Programming, Embedded System Design, Signals and Systems, Systems Simulation, Robot Vision, Linear Algebra, Differential Equations, Multivariable Calculus

INDUSTRY EXPERIENCE

Athelas Summer 2024, Fall 2022

Software Engineering Intern **React, CSS, Python, Java, SQL, Google Cloud Platform**

- (Summer 2024) Designed and implemented an electronic prescription platform enabling doctors to send prescriptions to all U.S. pharmacies utilizing SQL, Python, and React.
- Integrated and certified with the national e-prescription API in just four months—far exceeding the typical 1–2-year certification timeline.
- The platform now supports hundreds of monthly active doctors and providers across 12+ clinics.
- (Fall 2022) Integrated an account creation step into the company's front-end**,** eliminating the need for multiple contracts, forms, and calls. Reduced onboarding time by 35% and drove higher sales efficiency.

RESEARCH

Boeke Laboratory Jan 2024 - Present

Bioinformatics Researcher **PyTorch, JASPAR, CRISPR, Stem Cell Culture, Molecular Biology Techniques**

- Developed a Python library leveraging generative AI to design synthetic regulatory DNA like promoters / enhancers. GitHub: https://github.com/kunalguptamain/BoekeLabResearch/tree/main/PromoterResearchProject
- Demonstrated AI generated synthetic regulatory DNA's impact on gene expression in mouse embryonic stem cells (mESCs), advancing applications in gene regulation research.
- Optimized model to train 16x faster through distributed data parallelism and mixed precision; tailored model for wide-format DNA sequence data and small-scale feature extraction.

Medical Robotics and Interactive Intelligent Technologies Laboratory Jan 2023 – Present

AI Researcher **PyTorch**, **TensorFlow, MATLAB, Simulink, HPC**

- Developed a deep learning model enabling prosthetic limbs to recognize and execute up to 65 distinct gestures, a significant advancement over the standard two-gesture (open/close) systems on the market.
- Co-authored and presented at IEEE ICRA 2024: https://ieeexplore.ieee.org/document/10610638
- Achieved the highest recorded classification accuracy (98.03%) on a benchmark EMG dataset, leveraging a novel multimodal transformer deep learning model

Dynamical Systems Laboratory Jan 2024 - Present

Firmware Researcher **Altium, KiCad, PCB Design and Assembly, Arduino**

- Developed a haptic vest enabling blind / visually impaired individuals to "see" their environment through tactile feedback, conveying the location and distance of obstacles without relying on a cane. Improved traversal speeds by 1.4x and reduced the number of collisions by 2x.
- Designed and built custom electronics using Altium and soldering; the final design ensured high contact, comfort, and washability, with concealed wiring for a fashionable and practical design.

PROJECTS

Swarm Evolution **Python, C++**

- Developed a program simulating evolution across thousands of generations, where autonomous agents with genomes process environmental inputs (e.g., nearby agents, average velocity) and dynamically adapt to reach goal areas, showcasing emergent behaviors in a complex system
- Enabled parameter customization, including neuron counts and mutation rates, allowing users to experiment with dynamic systems and observe evolutionary strategies in action.
- https://github.com/kunalguptamain/SwarmEvolution

Programming Languages: Python, Java, C#, JavaScript, Typescript, C, C++, SQL, React, Vue, Golang, Ruby, MATLAB
Technologies: TensorFlow, PyTorch, Git, Simulink, AWS, GCP, Firebase, MongoDB, KiCad, Altium, Arduino, Fusion 360
Interests: Machine Learning, Full stack development, Software Engineering, Embedded Systems, Genomics, Medtech