Tailai Ying

385-256-3856 | tty6@cornell.edu | tailaiying32.github.io | linkedin.com/in/tailai-ying-099041260 | github.com/tailaiying32

Education

College of Engineering, Cornell University — Ithaca, NY
B.S. in Computer Science, GPA: 3.54 — *Expected May 2027*

Coursework

Data Structures and Algorithms, Machine Learning, Functional Programming, Analysis of Algorithms, Discrete Structures, Probability Models and Inference, Linear Algebra, Digital Logic and Computer Organization, Robotics, Database Systems

Technical Skills

Languages: Python, Java, JavaScript, TypeScript, SQL, OCaml, Verilog, Assembly, HTML/CSS
ML/AI: PyTorch, OpenCV, NumPy, scikit-learn, Pandas, MyoSuite, MuJoCo, PyBullet, Gymnasium, ROS, Weights & Biases
Web: React, Next.js, Angular, Node.js, Flask, Spring Boot, Tailwind CSS, PostgreSQL, MySQL, SQLite, Prisma
Tools: Docker, Git, GitHub Actions, Linux/Ubuntu, SLURM, Figma, Postman, Hydra

Experience

EmPRISE Lab — May 2025 – Present
Research Assistant — *Ithaca, NY*

- Extended Meta's MyoSuite into scalable RL research platform w/ QoL changes and new features - new policy for testing patient reachability under varying muscle conditions, CLI/YAML configuration and parallelization w/ Hydra, and data logging w/ Wandb; Deployed on Cornell HPC cluster, boosting experiment throughput by 3-5×
- Built information-theoretic test selection algorithm that identifies patient functional limitations 3-4× more efficiently than standard protocols through adaptive Bayesian optimization

Aria Lab — May 2025 – Aug 2025
Software Engineer Intern — *Salt Lake City, UT*

- Built 3D swarm simulation in PyBullet, with configurable drone controller models and automated data analysis
- Used novelty search to explore controller space and applied clustering to discover and classify 15+ novel swarm behaviors

CommuniCare — Jan 2025 – Aug 2025
Technical Lead — *Ithaca, NY*

- Led healthcare platform development for startup; raised $32,000+ and secured hospital partnerships across greater NY area
- Managed 8-member team, providing mentoring while implementing Agile workflows and CI/CD pipeline automation
- Spearheaded front-end development of a full-stack React/Flask web app, building reusable UI components, and coordinating with backend team to deliver scalable features

Cornell Autonomous Drone — Feb 2024 – Present
Software Engineer — *Ithaca, NY*

- Implemented stereo-based depth estimation and YOLOv10 object detection for target localization

Projects

CritterEvo | *Java* — Dec 2024 – Feb 2025

- Built ecosystem simulator with evolving entities on a procedurally generated cell world, demonstrating natural selection
- Implemented neural network with NEAT genetic algorithm, integrated A* pathfinding for intelligent behavioral adaptation
- Achieved over 80% performance improvement through multithreading, lazy loading and caching strategies
- Achieved 95% test coverage with comprehensive JUnit suite, ensuring robust functionality across edge cases

Memories/Birthday App | *React, Flask, SQLite, Docker* — Nov 2025

- Built full-stack app enabling users to upload, view, and organize photos, notes, and memories
- Built a responsive frontend using React, featuring image display, embedded video playback, navigation, and timeline sorting
- Implemented Flask backend with lightweight SQLite database for efficient data retrieval and storage
- Containerized backend with Docker and deployed on Fly.io, hosted frontend on Netlify; Set up full CI/CD workflow

Lockd - BigRed//Hacks Finalist and Beginner's Prize | *React Native, Flask* — Oct 2024

- Built IoT security system with React Native app, Flask backend, and Raspberry Pi hardware for real-time threat detection
- Implemented multi-modal sensing with shock/sound detection triggering instant push and email notifications

Ear Trainer v2 | *Spring Boot, Angular, VexFlow, Tone.js, PostgreSQL* — Jun 2025 – Present

- Developed full-stack music learning platform featuring dynamic aural exercise generation, real-time music notation rendering, and progress tracking across 10 grade levels aligned with RCM standards

OCaml Web Server | *OCaml, Lwt* — Mar 2025 – May 2025

- Developed concurrent HTTP server with persistent CSV database; 95% line coverage through comprehensive test suites