

Tailai Ying

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EDUCATION

College of Engineering, Cornell University

B.S. in Computer Science, GPA: 3.5

Ithaca, NY

Aug. 2023 – May 2027

COURSEWORK

Intro CS: Design and Development, Object-Oriented Programming and Data Structures, Discrete Structures, Probability Models and Inference, Linear Algebra, Analysis of Algorithms, Data Structures and Functional Programming, Digital Logic and Computer Organization

EXPERIENCE

Technical Lead

Jan. 2025 – Present

CommuniCare

Ithaca, NY

- Developed full-stack web application with React, Express, and Firebase as technical lead, connecting underserved communities to healthcare resources
- Spearheaded the end-to-end software development lifecycle, including system design, feature implementation, and quality assurance testing
- Implemented Agile methods with weekly sprints and meetings, enhancing collaboration and team productivity by 25%
- Mentored team in software development best practices and system design to maintain codebase integrity and scalability
- Collaborated with designers and stakeholders to define technical specifications and ensure alignment with user needs
- Implemented and configured GitHub Actions CI/CD pipeline for web application, automating deployment processes and streamlining team workflow

CS Subteam Member

Feb. 2024 – Present

Cornell Autonomous Drone

Ithaca, NY

- Processed and labeled over 2GB of image data to optimize datasets for supervised learning and computer vision algorithms
- Utilized the YOLOv10 machine learning model to engineer a real-time object detection system, reducing latency by 46%
- Implemented mono and stereo camera based visual odometry algorithms, including distance and angle calculations for motion tracking, enhancing localization precision for autonomous drone navigation
- Automated data preparation and training with Python scripting, reducing manual processing time by more than 50%

PROJECTS

CritterEvo | Java

Dec. 2024 – Present

- Built an artificial life simulator with genetic inheritance and mutation to simulate natural selection and evolution
- Developed a procedurally generated terrain system using Simplex Noise for environmental realism and diversity
- Improved pathfinding with the A* search algorithm, enabling critters to navigate obstacles and locate resources efficiently
- Implemented a neural network from scratch for high level decision-making, integrating the NEAT genetic algorithm to dynamically evolve critter intelligence for emergent behavior
- Emphasized clean, maintainable, and modular code with a focus on system design and effective class relationships
- Designed robust JUnit black and glass-box test suites to validate functionality and maintain consistency across edge cases
- Optimized application performance with multithreading, achieving up to 80% faster execution time by utilizing all CPU cores effectively

Lockd: BigRed Smart Lock | React Native, Flask, Typescript, Python

Oct. 2024

- Finished as Finalists and won Beginners Prize out of 41 teams and 140+ competitors for BigRed//Hacks
- Assembled a smart lock system, integrating React with Flask APIs to create a companion mobile app, enabling remote control and break-in detection
- Configured Raspberry Pi shock and sound sensors for intrusion detection, triggering push and email notifications upon suspicious activity
- Built and implemented RESTful APIs for lock automation and control, improving user experience and lock response time

Ear Training App | Next.js, Prisma, PostgreSQL, TailwindCSS, Figma, Typescript

Jul. 2024 – Sep. 2024

- Developed a full-stack Next.js web application for ear training, using VexFlow and Tone.js to display and play interactive music exercises
- Integrated PostgreSQL with Prisma ORM for efficient relational data management and user progress tracking
- Secured platform with user authentication and authorization mechanisms using Lucia, ensuring data privacy compliance
- Created seeding scripts to generate and populate the database with aural exercises aligning with the 2022 RCM Piano Syllabus

TECHNICAL SKILLS

Languages: Java, C++, Python, SQL, JavaScript, Typescript, HTML/CSS, OCaml, Verilog

Frameworks and Libraries: React, Flask, Express, Next.js, Bootstrap, TailwindCSS, Prisma, PyTorch, TensorFlow, OpenCV

Technologies and Tools: Git, Figma, Postman, PostgreSQL, Firebase