Tailai Ying

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Education

College of Engineering, Cornell University — Ithaca, NY
B.S. in Computer Science, GPA: 3.5 — *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 a full-stack web app integrating ML models to connect underserved communities to healthcare resources
- Led the end-to-end development lifecycle, including system design, feature implementation, and quality assurance testing
- 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

CS Subteam Member — Feb. 2024 – Present
Cornell Autonomous Drone — *Ithaca, NY*

- Processed and labeled over 2GB of image data to optimize datasets for supervised machine learning
- Utilized the YOLOv10 model to engineer a real-time object detection system, reducing latency by 46%
- Implemented OpenCV based visual odometry algorithms for drone navigation to enhance localization precision
- 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 the NEAT genetic algorithm to dynamically evolve critters' neural network for emergent behavior
- Emphasized clean, maintainable, and modular code with a focus on system design and effective class relationships
- Designed a comprehensive JUnit black-box test suite to validate functionality and maintain consistency across edge cases
- Optimized 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
- Developed a smart lock system, integrating React with Flask APIs to enable remote control and break-in detection
- Configured Raspberry Pi sensors for intrusion detection, triggering push and email notifications upon suspicious activity
- Built and implemented RESTful APIs for lock automation, improving response time to user commands by 25%

Ear Training App | *Next.js, Prisma, PostgreSQL, TailwindCSS, Figma, Typescript* — Jul. 2024 – Sep. 2024

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

Technical Skills

Languages: Java, Python, SQL, JavaScript, Typescript, HTML/CSS
Frameworks and Libraries: React, Flask, Next.js, Bootstrap, TailwindCSS, Prisma, TensorFlow, OpenCV
Technologies and Tools: Git, Figma, Postman, PostgreSQL

Awards and Achievements

BigRed//Hacks Finalist, BigRed//Hacks Beginners Prize, National Merit Scholar, 2-time AIME qualification