# 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 full-stack app with React, Express, and Firebase, connecting underserved communities to healthcare resources
- Led the end-to-end 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

**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 model to engineer a real-time object detection system, reducing latency by 46%
- Implemented OpenCV based visual odometry algorithms, 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 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 robust JUnit black and glass-box test suites 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

**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, Firebase

## Awards and Achievements

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