AMBROSE BLAY

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EDUCATION

Cornell University - Ithaca, New York, USA   **Graduating May 2027**

Major: Computer Science & Mathematics   **GPA**: 3.85/4.00

Relevant Coursework: Object-oriented Programming and Data Structures, Intro to Computing (Python), Discrete Math, Linear Algebra, Intro to Backend Development, Intro to Machine Learning

Involvements: National Society of Black Engineers, Underrepresented Minorities in Computing, Cornell Astronomical Society, Cornell Association of CS Undergrads, Intramural Soccer

SKILLS

- **Programming Languages:** Python, Java, JavaScript, Swift, HTML, SQL
- **Experience with:** Flask, Node.js, Express, Firebase, React, CSS, MongoDB, GitHub, Docker, Git, Postman, Google Cloud Platform

EXPERIENCE

Research Intern, Cornell Lab of Ornithology | Ithaca, NY   **Jun 2024 - Aug 2024**
- Implemented a robust Source Separation algorithm to improve BirdNET species identification by ~40%.
- Developed a localization algorithm to identify and localize sound sources in 2-dimensional space.
- Utilized a Gaussian-Mixture-Model–based technique to identify clusters in 2D azimuth histograms, leading to improved localization in complex acoustic environments.
- Wrote Jupyter Notebooks to automate the data analysis workflow reducing pre-processing time by 70%.

Teaching Assistant: Intro to Computing, Cornell University | Ithaca, NY   **August 2024 - Present**
- Support over 500 students by providing technical assistance and clarifying course concepts, enhancing their understanding and performance.
- Hold weekly office hours to address students' problems and reinforce understanding of course material.
- Collaborate with faculty to improve course delivery based on student feedback.

Full Stack Developer, Culture Care | Ithaca, NY   **Dec 2023 - May 2024**
- Created react-based online forms, streamlining client onboarding and successfully matching over 30 patients to suitable BIPOC therapists.
- Integrated Firebase for client-side authentication, protecting sensitive therapist and patient data.
- Implemented patient hard/soft pass algorithm, reducing practitioner appointment review time by ~60%.

Backend Developer, Cornell AppDev Hackathon | Ithaca, NY   **Nov 2023 - Dec 2023**
- Implemented the backend infrastructure for a fully functional iOS app that enables Cornell students to create and join study sessions.
- Designed and implemented a SQLAlchemy database, efficiently managing users and authentication data.
- Developed a robust Flask API server to enable real-time filtering and management of study sessions

PROJECTS

SyncFlix | Node.js, Express, React, MongoDB   https://t.ly/rym0m
- Developed a video streaming site, leveraging web sockets for synchronized viewing among users.
- Implemented a real-time low latency messaging feature using Socket.io, facilitating seamless communication between users in shared streaming rooms.
- Utilized MongoDB GridFS for efficient video bucket storage.
- Developed a secure user authentication system using JWT, ensuring data protection for users.

UniNav | React, Flask, SQLAlchemy, BeautifulSoup   http://www.uninav.info/
- Developed a fullstack web app that provides real-time occupancy data for ~100 Cornell lecture buildings.
- Scraped over 10,000 class schedules from Cornell public roster into an SQL database using BeautifulSoup.
- Implemented API server with Python Flask for database querying by lecture location and time.
- Designed React.js frontend for user interaction. Deployed on Heroku, serving over 50 students.

Weather App | JavaScript, HTML/CSS, Open Weather API, ChatGPT API   https://t.ly/O1Mgz
- Built a personalized weather app integrating Open Weather API and ChatGPT API that provides accurate clothing recommendations for different weather conditions.
- Implemented a Celcius/Fahrenheit toggle feature and successfully deployed on GitHub Pages.

LANGUAGES AND INTERESTS

- **Languages:** English, Twi (Native)
- **Additional Interests:** Astrophotography, Soccer, Sports games, African Art