Charles W. Roeder

New York, NY | 502-767-6705 | charlieroeder@gmail.com | charlieroeder.com

EDUCATION

Georgia Institute of Technology | Atlanta, GA

Master of Science in Computer Science   Expected Graduation, May 2026

New York Institute of Technology | New York, NY

Bachelor of Science in Computer Science, Minor in Mathematics   September 2021 - May 2024

- GPA: 3.98
- Awarded: Computer Science Dean's Award, Residential Community Leader of the Year, Dean's Recognition Scholarship, Presidential Honors List (Fall 2021 – Spring 2024)
- Relevant Coursework: Data Structures, Algorithms, Software Engineering, Artificial Intelligence, Database Systems, Mobile App Development, Web Development, Numerical Linear Algebra

PROJECTS

FOUND Run Club

- Developed a full-stack run club application deployed on web and mobile using Next.js & Expo/React Native.
- Implemented cross-platform mobile and web application with TypeScript and Supabase for backend infrastructure
- Created features including QR code attendance tracking, community chat room, and rewards for run participation.
- Managed user authentication and real-time data synchronization across web and mobile platforms.

SonaSense

- Engineered "SonaSense," a music streaming website using Next.js, React, TypeScript, and Tailwind CSS
- Developed a unique music analysis backend in Python, integrated with an API using AWS Lambda and API Gateway, enabling real-time key and BPM determination of uploaded songs for enhanced search and discovery features.
- Implemented Supabase for user authentication and data storage, backed by a PostgreSQL database, ensuring reliable and secure user interactions.
- Featured a sophisticated search functionality allowing users to filter songs based on key and BPM, enhancing the music discovery experience.

BlockFL

- Co-authored a research paper accepted for publication at the IEEE VCT 2024 Fall conference.
- Developed and implemented a novel system integrating federated learning and blockchain technology to enhance the security and privacy of IoT data and machine learning processes, demonstrating its effectiveness through extensive experimentation with CNNs on the MNIST dataset.
- Conducted comprehensive performance and security evaluations, demonstrating the proposed system's high model accuracy and effective mitigation of poisoning and model replacement attacks through decentralized blockchain.

WORK EXPERIENCE

FOUND Study   New York, NY

Senior Resident Assistant   *August 2023 - Present*

- Manage a team of 30 Resident Assistants for a residential community of over 1000 students.
- Participate in comprehensive recruitment and hiring processes, including resume screening, candidate interviews, and selection of new Resident Assistants
- Lead team meetings and training sessions to improve service quality and foster team cohesion.
- Foster interpersonal skills, appreciation of individual differences, and responsibility within community environments.

New York Institute of Technology   New York, NY

Community Specialist   *August 2023 - Present*

- Organize and execute engaging events to foster a sense of community among students.
- Create and distributed newsletters to keep students informed about campus activities and resources.
- Collaborate with diverse student groups to promote inclusivity and cultural awareness.

SKILLS

Programming: JavaScript, Python, Java, TypeScript, Dart, HTML, CSS, SQL, MatLab

Tools: React, Next.js, React Native, Flutter, MongoDB, AWS Lambda, AWS API Gateway, Supabase, TailwindCSS, Expo, Pandas, Pytorch, Scikit-learn, Seaborn, MySQL, PostgreSQL, Git, GitHub, Webpack, SSH

Platforms: Linux (Arch, Red Hat, Ubuntu), Windows 11