

# Samrat Sahoo

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## EDUCATION

### Georgia Institute of Technology

Atlanta, GA

*Bachelor of Science in Computer Science, Minor in Economics | GPA: 3.96/4.00*

*Aug. 2021 – May 2025*

- Concentrations: Artificial Intelligence + Systems and Architecture
- Awards: Bessemer Fellow, FinTech Fellow, Faculty Honors, Eagle Scout, Startup Pitch Competition Winner
- Coursework: Data Structures & Algorithms, Operating Systems, Compilers and Interpreters, Machine Learning

## WORK EXPERIENCE

### Software Engineering Intern

May 2023 – July 2023

*Cruise Automation (YC W14)*

*San Francisco, CA*

- Refactored the access control system, saving 100+ hours of engineering time per month (PostgreSQL/OPA)
- Engineered widgets displaying exit codes, and execution cost, saving 1000s of dollars (Kubernetes/Pulumi)
- Extended simulation platform's search engine to drive additional insights into tests (ElasticSearch/BigQuery)

### Software Engineering Intern

Jan. 2023 – May 2023

*Visor*

*New York City, NY*

- Redeveloped the HubSpot chat integration for better user experiences for 1000+ users (Vue.js/HubSpot API)
- Built the settings integrations page from scratch for different CRMs (HubSpot/Salesforce/Atlassian APIs)
- Redesigned the Visor home page, optimizing for real-time filtering via graph manipulation (CloudstoreDB)

### Software Engineering Intern

June 2022 – August 2022

*Fidelity Investments*

*Westlake, TX*

- Implemented a data interaction application (Vue.js/Express.js/AWS), saving 100+ hours of manual data mining
- Delivered automation APIs (GraphQL/Python) to 100 teams to interact with legacy engineering infrastructure
- Deployed data mining applications to 3000+ developers (Jenkins/ uDeploy), improving integration testing time
- Built modern GraphQL API layers on top of legacy SOAP APIs, reducing development time by 66 percent

### Software Engineering Intern

March 2021 – August 2021

*Roboflow (YC S20)*

*Des Moines, IA*

- Created the training procedure for the Roboflow classification network (PyTorch/Docker) for 3 enterprise users
- Initiated the Roboflow SDK (Python) enabling better workflow integrations for 250,000+ developers
- Roboflow Python package integrated with YOLOv5 (25,000 stars on Github), increasing users by 1000 per month
- Adapted vision models like YOLOX and MobileNetV2 (C++/Python) for Roboflow (1000+ monthly users)

## RESEARCH EXPERIENCE

### Research Assistant

December 2021 – Present

*Georgia Tech Financial Services and Innovation Lab*

*Atlanta, GA*

- Designed and developed a large-scale database (Vue.js/Celery/Python) for Digital Asset counterfeit detection
- Built a privacy-centered federated learning protocol for collaborative machine learning (GoLang/Python/LibP2P)
- Leveraging deep reinforcement learning techniques to optimize retirement portfolio investments (PyTorch/NumPy)

### Problem Solving and Education Technology Lab

Jan. 2023 – Present

*Research Assistant*

*Atlanta, GA*

- Researched different learning techniques (i.e., Explanations, Verbatim Script) for comparison against LLMs
- Prepared materials such as video transcripts, quiz questions, and the large language model prompt for the study

## RESEARCH PROJECTS & PUBLICATIONS

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### **Scatter Protocol** | *Accepted and published at IEEE International Conference on Blockchain (Blockchain 2024)*

- Developed an incentivized and trustless protocol for decentralized, federated learning (Solidity/Go-Ethereum)
- Created a decentralized, peer2peer node system to split machine learning loads across a network (GoLang/LibP2P)
- Designed a secure machine learning environment by introducing OS isolation using Open Container Initiative

### **Teaching ChatGPT** | *Accepted and published at Human Factors and Ergonomics Society*

- Directed experiments with 150+ students to determine the efficacy of the protege effect applied with LLMs
- Conducted a literature review regarding teachable agents and psychological concomitants of the protege effect

### **Universal NFT Vector Database** | *Submitted to Nature Scientific Reports*

- Developed public visualization and similarity matching APIs (Flask/Google Cloud Run) using RegNetY-080
- Devised a public graphical user interface (Vue.js/MongoDB) for easy interaction with vector database data
- Integrated task queue structure (AWS SQS/Celery) for horizontal scaling and hardware agnosticism

### **Financial Portfolio Optimization Using Deep Reinforcement Learning** | *In Progress*

- Creating reinforcement learning models to optimize retirement portfolios based on real data from US households

## SOFTWARE ENGINEERING PROJECTS

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### **Bits of Good Unified Analytics Platform**

- Devised an analytics dashboard for viewing analytics and managing projects for all 150 members at Bits of Good
- Deployed the API using serverless infrastructure to scale to economically handling 500,000 events per month
- Leveraged cron jobs through GitHub Actions to periodically ping analytics services for health monitoring purposes

### **Roboflow Python Package**

- Extended the API to add better support to package functionality and edge cases for better developer experiences
- Architected the design of the Python package, establishing the direction of future extension and development
- Published to the package directory, resulting in 300,000+ monthly downloads in top machine learning repositories

## LEADERSHIP

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### **Director of Engineering, Engineering Manager**

September 2021 – Present

*Bits of Good*

*Atlanta, GA*

- Led a team of developers using agile methodology to create a mobile app (React Native) for over 800 users
- Connected and streamlined 1400 developers through creating the National Hack4Impact Portal (Next.js/Azure)
- Began the Infrastructure Labs team to build scalable systems to reduce total development time by 100s of hours

## TECHNICAL SKILLS

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- **Languages and Frameworks:** PyTorch, NumPy, Python, Javascript, Java, Solidity, Typescript, GoLang, React.js, Vue.js, Nuxt.js, Next.js, Express.js, Flask, React.js, MongoDB, React Native, Assembly, C, LibP2P, SQL, Gymnasium (Reinforcement Learning)
- **Developer Tools and Libraries:** Git, Amazon Web Services (Simple Queue Service, Elastic Container Service), Google Cloud Product (Cloud Run), REST API, Docker, Docker Compose, GitHub Actions, Linux, CLI, RabbitMQ, Firebase, OpenAI Vector Store, Postman