Aninda Halder

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EDUCATION

Georgia Institute of Technology, Atlanta, Georgia (Remote)   Expected Fall 2026
Master of Science in Computer Science; Specialization: Interactive Intelligence
  Relevant Coursework: Human-Computer Interaction, Artificial Intelligence, Knowledge-Based AI, Machine Learning for Trading, Information Security, Game AI, Robotics: AI Techniques(Spring 2026)

The City College of New York, New York, NY   June 2021
Bachelor of Engineering in Computer Engineering
  Honors: Dean's List 2019, Dean's List 2020

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, Java, C++, C, Swift, HTML, CSS
Frameworks/Libraries: NodeJS, Express, React, Flask, Next.js, Heroku, XCode
Databases: SQL, NoSQL, MongoDB, MySQL, Postgres
Tools/Technologies: Docker, Git, AWS (EC2, S3), Postman, Figma, Arch Linux, Mocha & Chai

EXPERIENCE

CodePath — Tech Fellow, *Remote*   May 2023 – Jun 2024
- Mentored 30+ students in a hands-on technical course; led office hours and supported debugging sessions.
- Assisted in grading, assignment/project feedback, and technical interviews to develop real-world readiness.
- Promoted inclusive learning and collaborated with CodePath staff to continuously improve course delivery.

WorkSchool — Full-stack Software Developer, Remote   Jul 2020 – Aug 2021
- Built and maintained core React components for a course recommendation platform, improving user engagement.
- Implemented secure reset password and two-factor authentication features using JWT and OAuth protocols.
- Developed timeout logic to invalidate expired tokens, enhancing account security and session control.
- Designed and deployed a scalable Node.js email service for verification and transactional notifications.
- Collaborated with cross-functional teams to deploy Dockerized services via AWS CLI and Elastic Container Registry (ECR).
- Participated in agile sprints, contributed to code reviews, and maintained microservice health and CI/CD pipelines.
- Tools: Next.js, Node.js, Docker, AWS CLI, Google Cloud, OAuth, MongoDB

PROJECTS

Machine Learning for Trading | Market Simulation & Trading Strategy Evaluation   *May 2025 – Aug 2025*
- Built a market simulator to evaluate rule-based and learning-based trading strategies on historical stock data.
- Engineered technical indicators (MACD, RSI, Bollinger Bands) and implemented a Theoretically Optimal Strategy.
- Developed a Q-Learning agent and Strategy Learner using Random Trees to outperform benchmark returns.
- Conducted performance evaluation using Sharpe Ratio and cumulative return over multiple impact levels.
- Tools: Python, Pandas, NumPy, Matplotlib, Scikit-learn, Reinforcement Learning

Knowledge-Based AI | Visual Analogy Solver for Raven's Matrices   Mar 2025 – Apr 2025
- Designed an AI agent to solve Raven's Progressive Matrices using image processing and symbolic reasoning.
- Combined histogram, edge, and shape-based features with weighted scoring to identify visual analogies.
- Incorporated geometric transformation analysis (rotation, reflection, scaling) and pixel-wise logical operations (AND, XOR).
- Engineered feature extractors for pixel histograms, edge detection, contour analysis, and dark pixel ratios (DPR/IPR).
- Achieved over 80% accuracy on on benchmark dataset by integrating symbolic heuristics with statistical scoring.
- Tools: Python, OpenCV, PIL, NumPy, custom agent framework.

Safe Maps | Crime-Aware Routing Engine for NYC (Senior Design Project)   Sep 2019 – Jun 2020
- Co-developed a mobile navigation app that computes safer pedestrian routes by avoiding NYC crime hotspots.
- Engineered a Crime Analyzer algorithm that uses precomputed grid-based clustering on NYPD historical data to detect high-risk regions.
- Leveraged HERE Maps API to dynamically reroute users around dangerous areas, optimizing for coverage within 20-region avoidance limits.
- Implemented grid-packing optimization and spatial filtering to merge adjacent crime zones into scalable rectangular avoidance regions.
- Built user authentication, route caching, and visual feedback systems using React Native and Node.js.
- Tools: React Native, Python, TypeScript, NodeJS, MySQL, Docker, Google Maps API

Career Pitch | Lead Frontend Developer   Aug 2020 – Dec 2020
- Led a team of 3 to build a platform for job applicants to share resumes, cover letters, and video pitches.
- Built interactive video and PDF viewer components in React and deployed server on AWS EC2.
- Implemented UI feedback features and video upload pipelines to streamline recruiter review process.
- Tools: React, Bootstrap, Flask, AWS, Firebase, Postgres