Trisha Reddy

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Education

University of Pennsylvania • Philadelphia, PA Graduation: May 2028
Bachelor of Science in Engineering: Computer Science | *Minor:* Mathematics

Highlighted Coursework

Intro to Artificial Intelligence, Mathematical Foundations of Computer Science, Data Structures & Algos, Multivariable Calculus

Skills

- **Programming languages:** Java, Kotlin, Python, C#, Web (HTML/CSS/JS), C++
- **Tools & Frameworks:** Unity, NumPy, Matplotlib, GitHub, Node.js, Ethereum, MetaMask Crypto Wallet, React, Angular

Research & Experience

Research Assistant: ***Affect Detection Research at Penn Center for Learning Analytics*** Feb 2025 – Present

- Contributing to research on **keystroke-based affect detection**, aiming to build predictive models from user interaction data.
- Designed keystroke processing scripts using **Python** to clean, parse, and structure raw keystroke data from **MySQL** databases.
- Measuring typing speed and keystroke frequency over various time intervals to identify trends in user behavior.

Software Engineer Intern: ***certitude.*** Jan 2025 – Present

- Working at an edtech startup in Penn's VIP-X accelerator, focused on helping high school students explore careers and connect with university resources through AI-driven recommendations.
- Developing web scraping scripts to collect university club and program data, structuring it in **JSON format** for integration into the platform's AI models.
- Assisting in platform development by improving search functionality and optimizing data pipelines for real-time recommendations.
- Collaborating with the tech team to implement **vectorized embeddings** for improved search and recommendation accuracy.

NJ Governor School Researcher: ***SeBRUS Secure crowndsourcing platform using blockchain*** Oct 2023

- Designed a data crowdsourcing platform leveraging **Ethereum smart contracts** to protect machine learning datasets from data poisoning attacks, mitigating risks such as label-flipping, clean-label, and backdoor attacks.
- Integrated a distributed voting network and poisoned data detection model using **Pandas and Matplotlib** for robust dataset validation.
- Presented research findings at the NJ Governor's School Symposium at Rutgers University and the **IEEE MIT Undergraduate Research Technology Conference** 2023.

Projects

Dev-Health Tracker Dec 2024

- Developed a web app to track daily coding hours and fitness data by integrating the **GitHub API** and **Fitbit API**, allowing users to visualize their activity trends.
- Built interactive dashboards using **React, TypeScript, and Chart.js** to display real-time coding stats and fitness progress.
- Implemented a **Node.js and Express** backend to handle API requests and store user data in a structured format.

AI Attendance Helper Jun 2024

- Developed a facial recognition app for attendance tracking using **face embeddings** with **KNN classification**.
- Implemented a 100-frame facial recognition capture process to generate serialized Python files (pickle) for each student's profile.
- Utilized **OpenCV** for face detection, integrating with **MongoDB** Atlas to store attendance records in a **NoSQL** format.
- Built a **RESTful API** to perform GET requests for fetching and displaying attendance data in an organized table.

Evolutionary Autonomous Critters Oct 2023

- Created a simulation game where two critter species autonomously navigate their environment using **vector dynamics in C++**.
- Used **RayLib graphics library** to create interactive 2D environment with real-time animations and collision detection for critter interactions.
- Implemented evolutionary algorithms to simulate critters' behaviors over generations, enabling adaptation to environmental conditions such as food scarcity and obstacles.

3D Fruit Ninja Feb 2023

- Built an interactive VR game using **Unity's XR Interaction Toolkit**, implementing motion-controlled object slicing with accurate physics-based interactions using Unity's Rigidbody system.
- Implemented dynamic object slicing using real-time mesh deformation and particle effects to create visually realistic fruit-splitting mechanics.
- Integrated a countdown timer, score tracker, and added sound effects to enhance player immersion and engagement.

Awards

National Merit Scholarship Finalist, NJSIAA Scholar Athlete, AWS AI/ML Scholarship, US Cyber Camp CTF Winner ($1k Award)