Tharun Kumar Tiruppali Kalidoss

Sophomore at Princeton University

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Education

Princeton University
B.S.E. Computer Science
Aug 2022 - May 2026

Relevant Courses: Deep Learning in Psychology, **Theory of Algorithms** w/ Dr. Robert Tarjan, **Distributed Systems**, Economics in Computing, **Intro to Machine Learning**, Data Structures and Algorithms**,** Discrete Math, Intro to Programming Systems, Linear Algebra with Applications.

Technical Skills

React, JavaScript, **Typescript**, **Python**, **Java**, SQL and **NoSQL Databases**, **TensorFlow**, Azure, **AWS**, Serverless API Services, **Mobile Development**, **Full-stack Development**, Swift, Machine Learning, **Agile Development**, CI/CD, Flask, PyTorch, Solidity**, Test Automation**, Selenium, Jest

Relevant Experience

Software Engineering Lead —— Nora Music, Contract, Remote **Aug 2023 – Mar 2024**

- Leveraged NextJS, AWS S3, MySQL, and AWS Lambda to develop full-stack audio exploration web app. Recruited and led a small team of engineers to develop API service and data infrastructure for seamless data piping from clients.
- Developed a state-of-the-art webcrawler with Selenium with GPT data-cleaning pipeline. Fully automated in AWS EC2.
- Invented the `Nora file`: a proprietary encryption system and ML-based audio fingerprinting strategy to prevent song/audio piracy
- Built the first MVP to demonstrate prototype, secured first funding round in Nov 2023.

Python Developer —— OpenAI, Contract, Remote **Nov 2022 – Mar 2023**

- Developed integral training datasets for GPT 3 and Codex AI using Python, NumPy, SciPy, Matplotlib.
- Trained LLM through reinforcement learning based on human feedback, prompting, and automated testing. Cleaned and optimized code-based datasets based on patterns of inefficiency to cater most effective learning potential for the LLM.
- Adapted to rigorous technical expectations through self-learning and mentorship by LLM-focused Data Scientists at OpenAI.

Software Engineering Internship —— RescaleMed, Contract, Remote **Jun 2023 – Aug 2023**

- Led development of **full-stack mobile** cross-platform chatbot application. Built using React Native, Typescript, AWS Cloud, MongoDB Serverless functions. Application is available on the iOS app store as “Tibb”.
- Utilized CI/CD protocol with an agile application delivery pipeline to active testers during development.
- Trained proprietary GPT-based LLM optimized for client-facing mental health aid. Encrypted data compliant with GDPR.
- Designed and built scalable NoSQL database architecture with optimized retrieval/insertion. Automated testing using Jest, Selenium, and unit tests.

Data Science Researcher —— University of West Attica TelSiP, Athens, GR **Jun 2023 – Aug 2023**

- Created a novel CV dataset with state-of-the-art metadata by developing an iPad-based signature acquisition application using Swift, React Native, Flask, PyTorch. Paper detailing findings pending publication.
- Successfully trained PyTorch computer vision model with iOS’s ARKit to track gaze of users during signature collection phase.
- Maintained encrypted data on local disks through Flask-based server and REST APIs to follow GDPR regulation

Software Engineering Internship —— Modulus Labs**,** Remote **Dec 2022 – Jan 2023**

- Built smart contracts for an on-chain chess game demonstrating Zero Knowledge Machine Learning proofs.
- Developed front-end integration with smart contracts using React Redux state management and Solidity.

Projects

Award-winning GPT-based Arcade Wagering Platform built on Blockchain **Mar 2023**

- Collaborated with small engineering team to develop wagering platform for web-based arcade games using React, Flask, OpenAI API, Firebase, Solidity, EthersJS. Smart contracts based on the Ethereum test-net.
- Built back-end using Python Flask and Ethereum smart contracts, and integrated with React front-end.
- Automated tests for smart contract through long-term financial simulations and unit tests with HardHat and Remix.
- Won a total of $25,000 in prize money, winning Princeton Pitch, Princeton’s DeSo Hackathon, and LionHack.

NLP Mood Detection Algorithm **Feb 2021**

- Engineered mood-analysis algorithm that detects emotion through basic human-computer conversation.
- Scraped, sorted, and cleaned 10 million Reddit entries with Python, Requests, and NumPy.
- Trained Keras Neural Network with a focus on sentiment analysis with NLTK’s lexicon library.

Texas Energy Optimization **May 2021**

- Optimized Texas power grid for greatest energy output per CO2eq to reduce carbon emissions.
- Extracted irradiation, wind speed, and energy consumption data from past 25 years to extrapolate future growth.
- Modeled minimized output functions for each major energy plant with Python.

Leadership

CO-PRESIDENT —— Princeton Blockchain Club, Princeton, NJ **Sep 2022 - Present**