PRANAV RAMESH

EDUCATION

Harvard University | Cambridge, MA

Expected May 2026

John A. Paulson School of Engineering and Applied Sciences: A.B. in Computer Science, S.M. (Concurrent Masters) in Computer Science

- Cumulative GPA: 3.83/4.0 | Extracurricular Activities: Harvard Tech for Social Good, Harvard Undergraduate Capital Partners, Harvard Computer Society, Harvard Bhangra.
- Relevant Coursework: Data Structures and Algorithms, Computing Hardware, Systems Programming and Machine Organization, Linear Algebra and Vector Calculus, Linear Algebra and Real Analysis I, Discrete Mathematics.

South Windsor High School | South Windsor, CT

August 2018 - June 2022

- Valedictorian | Cumulative GPA: 4.46/4.0 | SAT: 1580/1600 (Math: 800/800, EBRW: 780/800) | 2022 Coca-Cola Scholar | Harvard Prize Book Award
- 2x AIME Qualifier | AIME Score: 11 | USA Math Olympiad (USAMO) Index: 219.5

WORK EXPERIENCE

Harvard Programming Languages Group | Undergraduate Researcher | Cambridge, MA

June 2023 - present

- Conducting research in self-verification for large language models and generative AI under Professor Nada Amin as part of the Program for Research in Science and Engineering.
- Improving theorem generation and verification using decomposition. Developed a plugin for ChatGPT to refine LLM-generated Coq proofs using verification.

Harvard University | Computer Science Teaching Assistant | Cambridge, MA

January 2023 - May 2023

• Grading student assignments and holding office hours for COMPSCI E-20 Discrete Mathematics for Computer Science under Dr. Rebecca Nesson.

North South Foundation | Software Engineering Intern | Chicago, IL (Remote)

• Developed online donations platform using React and Node.js, and implemented transaction processing using Stripe and Braintree APIs.

January 2022 - June 2022

EXTRACURRICULAR & LEADERSHIP EXPERIENCE

Harvard Tech for Social Good | Senior Software Engineer

September 2022 - present

• Led a team to develop web apps for City of Boston Visual Analytics and OkaySo (detailed below).

Harvard Undergraduate Capital Partners | Sourcing Analyst

September 2022 - present

Sourcing early-stage startups and connecting them with prominent venture capital firms.

MetricMix, LLC | Founder and Mobile App Developer

September 2018 - present

• (Using Swift for iOS App Development) Developed GeoScholar, a geography quiz app; Scholar.ly, an advanced GPA calculator; Gene Xpress, a protein synthesis simulator; GSEF Official, an economics resource app; and ReadSpeak, an accent translation app.

PROJECTS AND CERTIFICATIONS

Oasis | Decentralized Social Media Platform | React, Solidity, Moonbeam, Polkadot

June 2023

- Decentralized social media platform built on web3 technologies that rewards users for sharing their thoughts freely and anonymously.
- Token payout system built on Moonbeam staking DAO incentivizes members to wager on the popularity of their post, measured through upvote milestones.
- 1st Place Winner in Polkadot x EasyA @ Harvard Hackathon Moonbeam Track, Grand Finalist.

PaperScope | Al Literature Review Platform | React, Express.js, Node.js, Langchain, OpenAl

June 2023

• Platform that uses large language models (GPT-4) to streamline the literature review process for researchers by answering relevant questions and synthesizing material across multiple papers (React, Express.js, Node.js, Langchain, OpenAI).

MIPS Multicycle Processor | RISC Instruction Set Architecture | SystemVerilog

May 2023

- Designed and implemented a branch-optimized MIPS Multicycle Processor using SystemVerilog under Vijay Janapa Reddi.
 Developed scripts for automating the testing and validation of the processor, streamlining the debugging process and ensuring the reliability and accuracy of the design.
- City of Boston Visual Analytics Portal | Expenditures Visualization Platform | React, Django, Plot.ly

• Led a team of 3 software engineers to create a web platform to provide visualizations and insights regarding spending in the City of Boston.

May 2023

- Let a team of a software engineers to create a web plantonin to provide visualizations and misights regar
- $\bullet\,$ Created front-end data visualizations and set up backend API requests.

$\textbf{OkaySo} \mid \texttt{Expenditures Visualization Platform} \mid \textit{React, Express.js, Node.js}$

December 2022

- Co-developed a web portal for OkaySo for experts to answer anonymous young adults' questions regarding identity, relationships, mental health, and more.
 Constructed real-time chat messaging framework (0.5-sec latency). Built backend and implemented all API endpoints for application.
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Table Tennis CV | Table Tennis Game-Tracking Application | Python, OpenCV, Scikit-Learn

August 2021

- Built a computer vision-machine learning application to track active table tennis gameplay using Python and OpenCV.
- Leveraged frame differentiation and elliptical Hough transform to track a moving ball in view.
- Trained a machine learning model using the Scikit-Learn library in Python to predict where a ball lands based on the initial return location.

Java Decaffeinated | Published Book | <u>View on Amazon</u> The Python Starterpack | Published Book | <u>View on Amazon</u> October 2021 April 2020

Shortest Paths Revisited and NP-Complete Problems | Stanford Online | Certificate

January 2021

Graph Search, Shortest Paths, and Data Structures | Stanford Online | Certificate
Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming | Stanford Online | Certificate
Divide and Conquer, Sorting and Searching, and Randomized Algorithms | Stanford Online | Certificate

December 2020 December 2020

November 2020

SKILLS AND INTERESTS

Languages: English (fluent) | Tamil (native) | French (business proficiency)

Programming Languages and Frameworks: Python, C++, Java, JavaScript, React, Node.js, Express.js, Swift, System Verilog, Dart, Langchain, OpenAI, Django, Solidity Computer/Software: Alexa Developer Console, Autodesk Inventor, C++, Canva, Figma, Firebase, Flutter, Git, GitHub, Homebrew, HTML/CSS, LaTeX, Markdown, Matplotlib, Microsoft Office Suite, MongoDB, Notion, NumPy, Onshape, OpenCV, PyCharm, SoftCover, Visual Studio Code Interests: Tennis | Piano | Chess | Indian folk dance