PRANAV RAMESH

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Website | LinkedIn | GitHub

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) ***January 2022 - June 2022***
- Developed online donations platform using React and Node.js, and implemented transaction processing using Stripe and Braintree APIs.
- Built an authentication system for verified donors to access the payment portal easily and securely. Created a scheduling algorithm to allow donors to schedule donations.

EXTRACURRICULAR & LEADERSHIP EXPERIENCE

Harvard Tech for Social Good | *Senior Software Engineer* ***September 2022 - present***
- Led a team to develop a web app for City of Boston Visual Analytics, which provides visualizations and insights regarding city spending.
- Co-developed a web app for OkaySo, which enables users to ask questions regarding identity, relationships, and more.

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

PaperScope | AI Literature Review Platform | *React, Express.js, Node.js, Langchain, OpenAI* ***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).

City of Boston Visual Analytics Portal | Expenditures Visualization Platform | *React, Django, Plot.ly* ***May 2023***
- Led a team of 3 software engineers to create a web platform to provide visualizations and insights regarding spending in the City of Boston.
- Created front-end data visualizations and set up backend API requests.

OkaySo | Expenditures Visualization Platform | *React, Express.js, Node.js* ***December 2022***
- Co-developed a web portal for OkaySo for experts to answer questions regarding identity, relationships, mental health, and more to anonymous young adults.
- Constructed real-time chat messaging framework (0.5-sec latency). Built backend and implemented all API endpoints for application.

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.

Pillola | Automated Pill Dispenser Prototype | *C++, Arduino, Autodesk Fusion 360* ***July 2021***
- Designed all dispenser parts and conducted structural analyses using Autodesk Fusion 360, meant for use in senior living facilities.
- Used Arduino and C++ to automate pill dispensing, scheduling, and secure fingerprint/keypad authentication.

Java Decaffeinated | Published Book | View on Amazon ***October 2021***
- Published an introductory Java programming book covering types, control structures, and object-oriented programming concepts.

The Python Starterpack | Published Book | View on Amazon ***April 2020***
- Published an introductory Python programming book covering types, control structures, and object-oriented programming concepts.

Shortest Paths Revisited and NP-Complete Problems | Stanford Online | Certificate ***January 2021***
Graph Search, Shortest Paths, and Data Structures | Stanford Online | Certificate ***December 2020***
Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming | Stanford Online | Certificate ***December 2020***
Divide and Conquer, Sorting and Searching, and Randomized Algorithms | Stanford Online | Certificate ***November 2020***

SKILLS AND INTERESTS

Languages: English (fluent) | Tamil (native) | French (business proficiency)
Programming Languages and Frameworks: Python, C++, Java, JavaScript, React, Node.js, Swift, Dart, Langchain, OpenAI
Computer/Software: Alexa Developer Console, Autodesk Inventor, C++, Canva, Figma, Firebase, Flutter, Git, GitHub, Homebrew, HTML/CSS, LaTeX, Markdown, Matplotlib, Microsoft Office Suite, Notion, NumPy, Onshape, OpenCV, PyCharm, SoftCover, Visual Studio Code
Interests: Tennis | Piano | Chess | Indian folk dance