PRANAV RAMESH

pranavramesh@college.harvard.edu | (860) 597-8268
linkedin.com/in/pranav-ramesh1 | github.com/pr28416

EDUCATION

Harvard University
John A. Paulson School of Engineering and Applied Sciences
Cambridge, MA 02138
Expected May 2026
Major GPA: 4.0/4.0
Cumulative GPA: 3.92/4.0
A.B./S.M. in Computer Science (Concurrent Masters)
Secondary in Statistics

South Windsor High School
South Windsor, CT 06074
August 2018 - June 2022
GPA: 4.46/4.0 (Valedictorian)
SAT: 1580/1600 (Math: 800, EBRW: 780)

Relevant Coursework:
Discrete Mathematics for Computer Science (Harvard Extension School)
Intensive Introduction to Computer Science Using Java (Harvard Secondary School)
Intermediate Microeconomics
Linear Algebra and Real Analysis I (Harvard Extension School)
Management and Technology
Systems Programming and Machine Organization
Vector Calculus and Linear Algebra I

SKILLS

Languages: English, Tamil, French
General: adaptability, collaboration, communication, innovation, public speaking, problem-solving, research, writing
Computer/Software: Alexa Developer Console, Autodesk Inventor, C++, Canva, Dart, Excel, Figma, Firebase, Flutter, Git, GitHub, Homebrew, HTML/CSS, Java, JavaScript, LaTeX and Overleaf, Markdown, Matplotlib, Microsoft Office Suite, Notion, NumPy, Onshape, OpenCV, PowerPoint, PyCharm, Python, React, SoftCover, Swift, Visual Studio Code, Word
Other Technical: business analytics, data science, data structures and algorithms, iOS app development, object-oriented programming, product design, product engineering, robotics, statistical modeling, web development/design

WORK EXPERIENCE

Teaching Assistant for CS 20 Discrete Mathematics for CS - Harvard University — starting *January 2023*
- Teaching Assistant for COMPSCI E-20 Discrete Mathematics for Computer Science under Dr. Rebecca Nesson.
- Grading student assignments, holding office hours to guide students in discrete math.

Teaching Assistant, Grader - The Art of Problem Solving — *May 2022 - present*
- Grading student assignments for computer science courses.
- Serving as a teaching assistant for Introduction to Programming with Python.

Software Engineering Intern - North South Foundation — *January 2022 - June 2022*
- Developed online platform using React / Node.js and leveraged Stripe and Braintree APIs to process transactions.
- Constructed authentication system for donors to access payment portal easily.
- Created an algorithm for donors to choose to schedule donations.

Math Instructor - Mathnasium — *August 2020 - August 2022*
- Developed and implemented customized learning plans and curricula for individual students.
- Taught arithmetic through calculus, trained students for the MathCounts and AMC 8/10/12 contests, and tutored for the SAT/PSAT and ACT math sections.

EXTRACURRICULAR & LEADERSHIP EXPERIENCE

Senior Software Engineer - Harvard Tech for Social Good — *September 2022 - present*
- Co-developed a web app for OkaySo (React / Node.js, 10,000+ lines of code). OkaySo enables users to ask questions regarding identity, relationships, and more. Implemented core, cache-optimized expert live chat feature and secure login.

Sourcing Analyst - Harvard Undergraduate Capital Partners — *September 2022 - present*
- Sourcing early-stage startups and connecting them with prominent venture capital firms.

Founder, Author, and Programming Instructor - CodeSavant — *April 2020 - present*
- Developed a curriculum and taught beginner/intermediate Python programming classes nationwide, raising ~$2,000 for COVID-related causes.
- Published programming books on Amazon and created CodeSavant YouTube Channel (~950 subs/175k+ views).

Founder and Mobile App Developer - MetricMix, LLC — *September 2018 - present*
- (Using Swift) 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

Pillola (pranavramesh.com/projects1.html)
- Smart, secure pill dispenser designed for use in senior living facilities.
- Designed all dispenser parts and conducted structural analyses using Autodesk Fusion 360.
- Used Arduino and C++ to automate pill dispensing, scheduling, and secure fingerprint/keypad authentication.

Table Tennis CV (pranavramesh.com/projects1.html)
- Computer vision-machine learning application to track active table tennis gameplay using Python and OpenCV.
- Leveraged frame differentiation and elliptical Hough transform to isolate and track a moving ball in view.
- Trained a machine learning model using Scikit-Learn to predict where a ball lands based on the initial return location.

The Python Starterpack (amazon.com/Python-Starterpack-Simple-Introduction/dp/B0874PCH1J/)
- Introductory Python programming book covering types, control structures, and object-oriented programming concepts.

Java Decaffeinated (amazon.com/Java-Decaffeinated-Simple-Introduction/dp/B09K5TQWKC/)
- Introductory Java programming book covering types, control structures, and object-oriented programming concepts.

Shortest Paths Revisited and NP-Complete Problems Certificate — *January 2021*
www.coursera.org/account/accomplishments/certificate/TVSZEDGE45XS

Graph Search, Shortest Paths, and Data Structures Certificate — *December 2020*
www.coursera.org/account/accomplishments/certificate/8J29KCWZYQAY

Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming — *December 2020*
www.coursera.org/account/accomplishments/certificate/8PB2UFWXEEKS

Divide and Conquer, Sorting and Searching, and Randomized Algorithms — *November 2020*
www.coursera.org/account/accomplishments/certificate/MJ9RL2JNEU26

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EDUCATION

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

- **Cumulative GPA:** 3.92/4.0 | **Extracurricular Activities:** Harvard Tech for Social Good, Harvard Undergraduate Capital Partners, Harvard Computer Society.
- **Relevant Coursework:** 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, EBRW: 780)
- 2x AIME Qualifier | **AIME Score:** 11 | **USA Math Olympiad (USAMO) Index:** 219.5
- 2022 Coca-Cola Scholarship Recipient (selected as one of 150 out of 68,000+ high school seniors nationwide)

WORK EXPERIENCE

Harvard CS 20: Discrete Mathematics for CS | *Incoming Teaching Assistant* | Cambridge, MA — ***Starting January 2023***

- Teaching Assistant for COMPSCI E-20 Discrete Mathematics for Computer Science under Dr. Rebecca Nesson.
- Grading student assignments and holding office hours to guide students in discrete math.

Art of Problem Solving | *Teaching Assistant and Grader* | San Diego, CA (Remote) — ***May 2022 - present***

- Grading student assignments for computer science courses.
- Serving as a teaching assistant for Introduction to Programming with Python.

North South Foundation | *Software Engineering Intern* | Chicago, IL (Remote) — ***January 2022 - June 2022***

- Developed online donations platform using React and Node.js.
- Implemented transaction processing using Stripe and Braintree APIs.
- Constructed an authentication system for verified donors to access the payment portal easily and securely.
- Created a scheduling algorithm to allow donors to schedule donations.

Mathnasium | *Math Instructor* | South Windsor, CT — ***August 2020 - August 2022***

- Developed and implemented customized learning plans and curricula for individual students.
- Taught arithmetic through calculus, trained students for the MathCounts and AMC 8/10/12 contests, and tutored for the SAT/PSAT and ACT math sections.

EXTRACURRICULAR & LEADERSHIP EXPERIENCE

Harvard Tech for Social Good | *Senior Software Engineer* — ***September 2022 - present***

- Co-developed a web app for OkaySo (React & Node.js, 10,000+ lines of code). OkaySo enables users to ask questions regarding identity, relationships, and more.
- Implemented core, cache-optimized expert live chat feature for fast messaging, as well as secure login.

Harvard Undergraduate Capital Partners | *Sourcing Analyst* — ***September 2022 - present***

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

CodeSavant | *Founder, Author, and Programming Instructor* — ***April 2020 - present***

- Developed a computer science curriculum and taught beginner and intermediate Python programming classes nationwide, raising ~$2,000 for COVID-related causes.
- Published Python and Java programming books on Amazon and created CodeSavant YouTube Channel (~1125 subs/250k+ views).

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

Pillola (pranavramesh.com/projects#pillola) — ***July 2021***

- Smart, secure pill dispenser designed for use in senior living facilities.
- Designed all dispenser parts and conducted structural analyses using Autodesk Fusion 360.
- Used Arduino and C++ to automate pill dispensing, scheduling, and secure fingerprint/keypad authentication.

Table Tennis CV (pranavramesh.com/projects#tabletenniscv) — ***August 2021***

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The Python Starterpack (amazon.com/Python-Starterpack-Simple-Introduction/dp/B0874PCH1J/) — ***April 2020***
Java Decaffeinated (amazon.com/Java-Decaffeinated-Simple-Introduction/dp/B09K5TQWKC/) — ***October 2021***

Shortest Paths Revisited and NP-Complete Problems Certificate (pranavramesh.com/algospec1) — ***January 2021***
Graph Search, Shortest Paths, and Data Structures Certificate (pranavramesh.com/algospec2) — ***December 2020***
Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming (pranavramesh.com/algospec3) — ***December 2020***
Divide and Conquer, Sorting and Searching, and Randomized Algorithms (pranavramesh.com/algospec4) — ***November 2020***

SKILLS AND INTERESTS

Languages: English (fluent) | Tamil (native) | French (business proficiency)
Programming Languages & Frameworks: Python, C++, Java, JavaScript, React, Node.js, Swift
Computer/Software: Alexa Developer Console, Autodesk Inventor, C++, Canva, Dart, Figma, Firebase, Flutter, Git, GitHub, Homebrew, HTML/CSS, LaTeX, Markdown, Matplotlib, Microsoft Office Suite, Notion, NumPy, Onshape, OpenCV, PyCharm, SoftCover, Visual Studio Code
Other Technical: Business Analytics, Data Science, Data Structures and Algorithms, iOS App Development, Object-Oriented Programming, Product Design, Product Engineering, Robotics, Statistical Modeling, Web Development, Web Design

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- **Relevant Coursework:** Systems Programming and Machine Organization, Linear Algebra and Vector Calculus, Linear Algebra and Real Analysis I, Discrete Mathematics.

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- 2x AIME Qualifier | **AIME Score:** 11 | **USA Math Olympiad (USAMO) Index:** 219.5

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- 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 Programming Languages Group | *Undergraduate Researcher* — ***February 2023 - present***

- Exploring the incorporation of formal verification into large language models under Professor Nada Amin.

Harvard Tech for Social Good | *Senior Software Engineer* — ***September 2022 - present***

- Co-developed a web app for OkaySo (React & Node.js, 10,000+ lines of code). OkaySo enables users to ask questions regarding identity, relationships, and more.
- Implemented secure expert authentication and developed core, cache-optimized expert live chat feature for fast messaging.

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Pillola | Automated Pill Dispenser Prototype — ***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.

FIRST Robotics Team | Captain and Lead Programmer — ***September 2018 - June 2022***

- Implemented Limelight vision pipeline to integrate real-time object-tracking.
- Developed path trajectories using Hermite clamped cubic splines with PID feedback control for autonomous path-following.

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.

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Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming | Stanford Online | Certificate — ***December 2020***

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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