# 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*
- 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/)     *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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**Art of Problem Solving** | *Teaching Assistant and Grader* | San Diego, CA (Remote)                           *May 2022 - present*
- Grading student assignments for computer science courses and 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, 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 2022 - 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.

**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.
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- 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                                                                          *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.

**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*

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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