Vishnu S. Penubarthi

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Education

MASSACHUSETTS ACADEMY OF MATHEMATICS AND SCIENCE | GRADES 11-12

- Grade 11 coursework in math modeling, physics, engineering, research, technical writing, computer science, humanities, and language. Additionally, enrolled in the advanced computer science track, the advanced French track, and Multivariable Calculus at WPI
- Grade 12 coursework consists of college courses taken at WPI. Coursework includes Discrete Math, Ordinary Differential Equations, Applied Statistics 1, Systems Programming Concepts, Accelerated Object-Oriented Design Concepts, Human-Computer Interaction, Software Engineering, Matrices and Linear Algebra 1, and Graph Theory.
- Unweighted GPA: 4.0

SHREWSBURY SENIOR HIGH SCHOOL | GRADES 9-10

- Unweighted GPA: 4.0

Grade 10

- Coursework included Precalculus Honors, Honors English, Honors US History I, Honors Jazz Band, Honors Chemistry, Honors Research Methods, and in-class teacher aid in Mathematics
- AP Statistics and AP Calculus BC self-studied

Grade 9

- Coursework included Algebra and Geometry II Honors, Orchestra, Honors English, Honors Biology, US World History

SCORES

SAT: 1540 (out of 1600)	PSAT: 1490 (out of 1520)	AP Calculus BC: 4 (AB sub score: 5)	AP Statistics: 5
SAT Math II: 800/800	SAT Physics: 770/800	ACT: 35 (out of 36)	

Honors and Awards

- Grade 12: National Merit Commended Student, AP Scholar with Distinction
- Grade 11: Won 4th Place Award at ISEF for emergency response application, won First Place Award at ISEF qualifying fair (number one overall), state representative to ISEF, AMC 12 Honor Roll (top 5%), invited to participate in American Invitational Math Examination (AIME), scored 34th in the state on MAML Math Exam out of thousands of competitors, invited to take the MAML 2 exam, National Honor Society Inductee, invited to participate in MIT's Beaverworks Summer Institute and won 1st place within Cog*Works class during competition, 5th Place Team Award at Fitchburg State Programming Competition
- Grade 10: Scored in top 100 on MAML Math Exam, invited to the MAML 2 exam, top scorer on HMMT Math Competition Team, 4th Place Award at MSSEF qualifying fair, Highest Honor Roll all four terms, FRC Engineering Award (2), Community Service Award, invited to discuss new technologies as part of a podcast
- Grade 9: Highest Honor Roll all four terms, FRC Chairman's Award, FRC Runner-Up at State Championship qualifying event

Extracurricular Activities

- Grade 9 Clubs: FRC Team 467, Junior Varsity Soccer Team Starter, Orchestra (Cello: 7 years of instruction)
- Grade 10 Clubs: Quiz Bowl Team (Primary Team), FRC Team 467 (Engineering Team Lead), Science Bowl, Science Olympiad, Jazz Band (String Bass: 2 years of instruction)
- Grade 11 Clubs: Robotics Team, Programming Team, Arduino Club, Vex Robotics, Student Government (Class President)
- Grade 12 Clubs: Robotics Team, Programming Team (Captain), Cyber-Patriot Club
- Community Service: Helped host an engineering camp for middle school kids, taught middle school kids programming and the basics of thinking like a programmer, coached First Lego League Team for two years (won Champions Award and Engineering Design Award at the state level), organized and was captain of a Relay for Life school team which raised several hundred dollars, started a blog about programming,
- Total Hours: 313 hours of volunteering

Research Experience

- STEM I: Developed a hands-free emergency response application which sends out directions to the individual who needs help to their friends who are within a certain radius: Won a 4th Place award at the International Science & Engineering Fair (ISEF), paper in process of being published in two different journals
- STEM II: Developed a device using Bluetooth-enabled Arduinos which sends an alert when the devices are too far apart for a client who has dementia: work is published on Instructables page: https://www.instructables.com/id/Walker-Proximity-Device
- Apps for Good: Developed application which will bridge supermarkets and food pantries by enabling the food pantries to search the excess inventory of supermarkets and arrange a pick-up, supported by Mass. State Representative, in process of final adjustments before distribution.
- Independent CS Project: Developed a pathfinding algorithm based on A* which can be used as a centralized control system for autonomous vehicles to minimize traffic and congestion on roads

- MIT Beaverworks: Part of the Cog*Works program which focused on different advanced applications of machine learning. Projects completed include Shazam-like program which identifies music based on sound, image detection and classification program which recognized and identified individuals in a photo, Google Images-like program which allowed users to enter in keywords and browse through relevant photos. Final projects include several Alexa skills, a hand-drawing AI which guessed the object in the drawing, and AI which recognized people based on gait.
- Developed personal website: http://users.wpi.edu/~vspenubarthi
- Hackathon Projects: Developed machine-learning based system which tracks user's nose and converts movements into text
- Internship: Developing application for domestic company product tracking and implementing algorithm to minimize costs
- Working on creating an optimized auto-grad library with MIT Lincoln Laboratory researcher for machine learning in Python
- Personal Projects: Working on application which would provide low-cost analytics for people to keep track of visitors to their business

Computer & Laboratory Skills

- Java
- Python
- R
- Limited SQL
- XML
- TensorFlow
- JavaScript
- Limited C++
- MATLAB
- HTML, CSS
- Limited C#