Shalin Muzumdar

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Education

University of Maryland College Park, Maryland

B.S. in Computer Science August 2024 – May 2028

Bridgewater-Raritan High School Standard Diploma June 2024 GPA: 4.75

Experience:

Lead Programmer and Outreach Advisor– School Robotics – First Robotics Competition (FRC) Team 303 September 2021-June 2024

* Programmed, tested, and calibrated motors and controllers for standard tank drive by using functionality from WPILib API; coded the controls for mechanical hook attachment and adjusted the encoder for precision; tested drivetrain on virtual field using simulation models
* Assembled and fine-tuned limelight vision of the robot to detect distances from scoring blocks, opposing robots, and field obstacles; used limelight function to program the robot to score autonomously
* Developed self-balancing wooden ramp to be used on robot practice field for testing; Programmed gyro sensors and LED lights to make the ramp light up when perfectly balanced; used Arduino IDE to display different colors for every possible state of ramp
* Set up field for junior FLL competitors by designing and assembling wooden tables; served as head referee for regional competition which was hosted by the team
* Wrote and edited several articles for local newspapers Patch and Breeze to promote fund-raising and community outreach events
* Organized events such as STEAM Fair and Sensory Fair to promote youth education and involvement in science and technology

Coding Instructor – iCode Bridgewater July 2023-May 2024

* Guided students in developing a virtual reality simulation through Unreal Engine 5; simulation allows user to participate in a bowling match; students designed 3D models to represent bowling equipment and programmed avatar to be able to move and play
* Taught elementary school students about core programming principles; instructed in Python, Java, and Scratch; created low-level scenes and games in Scratch, including recreations of Head Soccer and Flappy Bird mobile games
* Taught students from Warren Middle School at weekly robotics club meetings; demonstrated build designs and coding techniques using VEX Robotics; guided students to complete challenges
* Instructed 3D modeling classes where students used Tinker CAD software to design objects of their choice; used built-in physics and mathematical features to test models

App Developer - RWJ Barnabas Beth-Israel Hospital May 2023-August 2023

* Developed location tracking app to be used by patients navigating to respective rooms at given RWJ hospital location
* Modeled functionality using tracking and route design from Google Maps API; accepted user input for desired building and room while calculating estimated time and distance; compared user location data with that of room
* Designed front end using XML coding feature in Android Studio: drop-down menu to choose building, floor, and room; highlight route to chosen building; display current user location when mapped onto current floor layout; indicate when to change floors
* Skills employed: Java, XML, Graphic and App Design

Developer/Intern - Ethosh Digital June 2022-September 2022

* Developed prototypical virtual reality scene to be deployed in blockchain-powered virtual reality platform Decentraland
* Completed back-end design for game, including a running server for the player leaderboard, player-following mechanism for monsters, decrease of player health and weapon functionality, and series of levels with increasing difficulty
* Designed front end by creating three-dimensional models of weapons, monsters, and obstacles; also displaying player health, weapon status, and current position on leaderboard
* Skills employed: JavaScript, TypeScript, Game Development, Computer-Aided Design

Personal Projects:

Web Development – Weather Application September 2024-October 2024

* Developed Java Web Application to determine the current weather forecast for a location
* Address is determined by user input, and is used to access forecast details from public geolocation and weather APIs
* Displays current temperature, precipitation, and wind data using HTML/CSS
* Skills employed: Full-Stack Web Development, Java, Servers, HTML/CSS

Skills:

* Proficient in Python, Java, JavaScript, TypeScript, C, C++, HTML, CSS, XML
* Experience with developing software for virtual reality, machine vision, robot simulations, app development, and full stack web development
* Experience with Computer-Aided Design to model robot parts, common objects, game pieces and video game characters
* Experience mentoring in Python, Java, and Scratch
* Mathematically proficient in Calculus III, Differential Equations, and Linear Algebra
* Experience coaching in youth soccer and basketball

Scholarships and Recognition:

* Awarded Build Scholarship for High School Robotics Team
* Received President’s Scholarship at University of Maryland
* Graduated in Top 5% of 2024 Class
* Achieved Honor Roll status for all four years of High School