Rishi Bala

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Education

University of Texas at Austin, Austin, Texas — August 2025 – Present
- BS: Electrical and Computer Engineering Honors, BBA: Canfield Business Honors

Newark Academy, Livingston, New Jersey — September 2018 – June 2025
- Cum Laude Society, IB Diploma Recipient, AP Scholar, 36/36 ACT, National Merit Commended Scholar

Experience

Competitive VEX Robotics | Summit, New Jersey — September 2020 – May 2025
Captain, Lead Builder, Design/CAD, Engineering Notebook
- Captain of a six person VEX team; spent 20+ hours each week holding team meetings for our robot and mentoring younger students.
- Led monthly design revisions for each robot and documented all iterations in our award-winning engineering notebook, employing CAD software such as Autodesk Fusion 360 or Onshape and programming languages such as VEXCode Pro or PROS (based off C++).
- 1x World Finalist, 1x Worlds Division Champion, 1x Worlds Division Finalist, 2x New Jersey Tournament Champion

New Jersey Institute of Technology Intern | Physics and Mechanical Engineering Laboratory — Summer 2024
Intern – Prof. Nuggehalli Ravindra and Prof. Balraj Mani
- Worked and researched as a primary author for two review papers on magnetotactic bacteria (MTB) and ferrofluids, respectively.
- Utilized CAD to design a produce an array of milli-scale electromagnetic coils driven by H-bridges to control miniature robotic arms.

Minuteman Newspaper — October 2022 – May 2025
Editor-in-Chief (12), Editor (11), Staff Writer (10) (Selected through applications and interviews)
- Led weekly meetings for 14 section editors (8 different sections) to coordinate the production of 6-8 printed/online article sets per year.
- Managed contracts with the printing press; responsible for writing/editing articles, programming the website, and selecting staff.

PACT – Program in Algorithmic and Combinatorial Thinking — Summer 2023
Studied under Prof. Rajiv Gandhi | Selected through an application
- Studied discrete mathematics and theoretical CS; explored topics such as combinatorics, probability, graph theory, and algorithms.

VEX IQ Instructor | Summit, New Jersey — November 2021 – Present
Teacher, Judge, Referee
- Taught VEX IQ students throughout the year, introducing students to basic robotics techniques and block coding.

Projects | www.rishibala.com

6502 Breadboard Computer — August 2024 – December 2024
Hardware Pictures
- Built a breadboard computer using the classic 6502 microprocessor; programmed simple instructions and games in assembly.
- Created a custom clock module using a separate Arduino Uno; used an Arduino Mega to communicate with the 6502 computer.
- Utilized an EEPROM programmer to transfer code to the processor; used several LCD displays and an array of electronics.

Word Hunt Robot — July 2024
Github Repository | Demo
- Created an Arduino robot that uses three servo motors running on a voltage divider to play the popular iMessage game Word Hunt.
- Used a custom, conductive stylus made from aluminum foil, electrical current from the Arduino, and a cut up pen.
- Built a Java program that finds all words via a Trie data structure of the Collins Dictionary; utilizes socket and serial communication.

JavaXchange — July 2023 – August 2023
Github Repository | Demo
- Developed a multithreaded mock stock market that records transactions, matches BUY/SELL orders, and uses serialization to communicate with trading bots running different strategies, such as EWMA or RSI, in an attempt to generate the most profit.
- Parses real historical data to create a Market Making Bot which sends a new order based off each AAPL price point every 10ms.

VRC Scouting Website — August 2022 – October 2022
Github Repository | Demo
- Developed a live competition scouting tool that ranks active VRC teams to assist with scouting and alliance selection; parses the RobotEvents API every 12 hours and stores all data using MongoDB; extensively used Node.js and Express.js to build the website.
- Created an algorithm that gives each team an overall ranking and displays each team's robot features and awards.

Technical Skills

Languages: Java, Python, JavaScript, HTML, CSS, VEXCode Pro V5, PROS, C++
Skills: AWS, Node.js, Express.js, MongoDB, Crontab, Multithreading, CAD, Arduino
CAD Software: Autodesk Fusion360, Autodesk Inventor, AutoCAD, Protobot, Onshape