Rishi Bala

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Education

The University of Texas at Austin, Austin, Texas — August 2025 – May 2029
- BS: Electrical and Computer Engineering Honors, BBA: Canfield Business Honors

Newark Academy, Livingston, New Jersey — September 2021 – June 2025
- Cum Laude Society, GPA: 4.64/4, 36/36 ACT, IB Diploma Recipient, AP Scholar, National Merit Commended Scholar

Experience

Longhorn Racing – Electric — August 2025 – Present
Electronics Team Engineer (Competing in the Formula SAE International Competition)
- In charge of designing the Thermal Sensor Module; created a 6-layer PCB integrating temperature sensing and radiator fan control.
- Developed embedded firmware for sensor data and fan control; worked on enclosure integration to support data collection.
- Collaborated with members across all vehicle subsystems; selected from over 800 UT applicants with a 5% acceptance rate.

Competitive VEX Robotics | Summit, New Jersey — September 2021 – 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.
- Employed CAD software such as Autodesk Fusion 360; documented each robot iteration in an award-winning engineering notebook.
- 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 — June 2024 – August 2024
Intern – Prof. Nuggehalli Ravindra and Prof. Balraj Mani
- Researched and worked on two review papers detailing magnetotactic bacteria (MTB) and ferrofluids as a primary author.
- Utilized CAD to design and produce an array of milli-scale electromagnetic coils driven by H-bridges to control miniature robotic arms.

PACT – Program in Algorithmic and Combinatorial Thinking — June 2023 – August 2023
Studied under Prof. Rajiv Gandhi
- Studied discrete mathematics and theoretical CS; assessed in 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

Thermal Sensor Module (TSM) — August 2025 – Present
Github Repository | *Hardware Pictures*
- Led the development of the TSM, a car enclosure responsible for temperature sensing, fan control, and cooling loop flow monitoring.
- Owned the entire design process, including component selection, schematic design, soldering, testing, and firmware development.
- Gained hands-on experience in embedded systems and hardware–software integration, optimizing real-time monitoring and control.

6502 Breadboard Computer — August 2024 – December 2024
- Built a breadboard computer using the classic 6502 microprocessor; programmed simple instructions 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 chip to store machine code and communicate with the processor; used several LCDs and an array of electronics.

Word Hunt Robot — July 2024
Github Repository | *Demo*
- Created an Arduino robot that uses three servo motors running and a custom stylus to play the popular iMessage game Word Hunt.
- 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.

Additional Information and Skills

Technical Skills: Arduino, Java, C, Python, CAD, JavaScript, PROS, MongoDB, Node.Js, PCB Design
Honors: VEX Robotics World Finalist, World Division Champion, National Merit Commended Scholar
Interests: Pickleball, Motorsport, Drums, Jazz, Tennis, Go-Karting
Work Eligibility: Eligible to work in the U.S. with no restrictions