

# Rishi Bala

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## Education

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**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

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**Longhorn Racing – Electric**

August 2025 – Present

*Electronics 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. Nugehalli Ravindra and Prof. Balraj Mani*

- Researched and worked on two review papers detailing [magnetotactic bacteria x\(MTB\)](#) 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](http://www.rishibala.com)

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**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

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**Technical Skills:** C, Java, Python, JavaScript, MongoDB, Node.js, CAD, RTOS, 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