

Rishi Bala

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Education

Newark Academy, Livingston, New Jersey

September 2018 – June 2025

- IB Diploma Candidate
- AP Scholar: AP US History, AP Calculus AB/BC
- Class of 2025

Extracurriculars

Competitive VEX Robotics

September 2020 – Present

Captain, Lead Builder, Design/CAD

- Competed through Robot Revolution in Summit. Led numerous teams as the captain to successful seasons, putting in thousands of hours of work.
- In charge of the design and construction of every robot, using CAD software such as Autodesk Fusion360, Protobot, or AutoCAD.
- 3x State Qualifier, 2023 New Jersey Amaze Award, 2x Tournament Finalists, 1x Worlds Qualifier
- Assisted the 2022 Vex Robotics World Finalist team with build and design.

Newark Academy Big Band

September 2021 – Present

Lead Drummer (Selected through an audition process)

- Led the rhythm section as the first-chair drummer, playing an extensive repertoire of jazz classics.
- Competed with a very well-respected jazz program, traveling across New Jersey for competitions and jazz festivals.
- Placed top 3 in the NJAJE Jazz State Finals every single year.

Newark Academy Yearbook

September 2022 – Present

Assistant Proof Editor (10), Lead Proof Editor (11) (Selected through an application)

- Oversaw the management and proofreading of the school's annual yearbook.
- Conversated with other staff members and faculty advisors in order to complete production and ensure minimal errors on a timely basis.
- Managed the assistant proof editors and the other staff members to ensure thorough and error-free production.

Minuteman Newspaper

October 2022 – Present

Staff Writer (10), Editor (11) (Selected through an application)

- Coordinated with Editor In-Chief's and faculty advisors to produce 4-5 completed sets of articles.
- Managed and directed other staff writers throughout the year.
- Wrote 3-4 articles per year and edited/proof-read 10-15 other articles per year.

Curriculum Committee

September 2023 - Present

Grade Representative (Selected via school administration and application essays)

- Met with Department Chairs and the school administration to plan the Upper School course curriculum and review proposals for new courses.
- 1 of 2 students selected among the entire grade.

Newark Academy Boys Tennis Team

September 2021 - Present

Junior Varsity (9, 10)

- Trained with numerous 5-star and Blue-Chip athletes.
- Competed in state-wide tournaments and local matches.

Cricket Club

September 2021 - Present

Member (9-10), Vice-Captain (11), Captain (12)

- Introduced numerous students to cricket and taught members the basics game rules, as well as strategies and skills.
- Lead weekly practices and scrimmages within the club.
- Created an annual faculty v. student match in the week before Spring Break and oversaw the yearly cricket banquet tradition.
- In charge of recruiting new members, collaborating with faculty advisors and other club leaders, and communicating with the student body.

Clubs Committee

September 2023 - Present

Staff Member (Selected through an application)

- Helped create and design the responsibilities of the Clubs Committee, which was intended to oversee all Newark Academy clubs/activities.
- Communicated and planned with student and faculty leaders.
- Analyzed and worked to increase the interest in the Newark Academy clubs/extracurriculars program.

Research, Summer, and Job Experiences

PACT – Program in Algorithmic and Combinatorial Thinking

Summer 2023

Selected through an application

- Taught by Prof. Rajiv Gandhi in a course on discrete mathematics and theoretical computer science.
- Worked on combinatorics, probability, graph theory, algorithms, and so on.
- Generally based around the UPenn course CIS160.
- Additional lectures from guest professors.

Robotics and Programming at NJIT

Summer 2022

Selected through an application

- Accepted into a program designed to enhance prior robotics experience with several programming languages and electronic elements.
- Delved into biomedical engineering, advanced mathematics, computer applications, and communications.

VEX IQ Instructor

November 2021 – Present

Taught, judged, and ran several New Jersey robotics competitions

- Volunteered during the school year to help run robotics competitions for elementary and middle school students.
- Worked throughout the year to teach basic robotics skills and block coding to younger VEX IQ students.
- Introduced elementary and middle schoolers to VEX IQ hardware and VEX block coding every summer.
- Worked at Robot Revolution in Summit, New Jersey.

Projects

VRC Scouting Website

August 2022 – October 2022

[Github Repository](#) / [Website](#) / [Demo](#)

- Ranks all currently active VRC (VEX) teams and assists with scouting and alliance selection at live competitions.
- Uses an algorithm based on thousands of GET requests to create a ranking and overall ‘score’ for each team, allowing for extremely efficient live-competition scouting.
- Displays each team’s features and all their awards/statistics, allowing for extremely efficient scouting.
- JavaScript, HTML5, CSS3
 - Node.js, Express.js, EJS, MongoDB, Mongoose, AWS EC2
- Website: rbalascouting.com
 - Username: rba25
 - Password: 4610JPassword

JavaXchange

July 2023 – August 2023

[Github Repository](#) / [Demo](#)

- Creates a multithreaded mock stock market where the backend server records each transaction from trading bots and finds matches between comparable BUY and SELL orders, ultimately notifying and communicating with both parties through serialization and deserialization.
- Allows for trading bots to run different “strategies” and attempt to generate the most profit.
- Uses the Twelve Data API to generate a .txt file of the price of AAPL for every single minute between June 2021 and January 2023.
- Parses this .txt file to create a Market Making Bot which sends a new order based off the AAPL price every 10ms, essentially creating the simulation for the other trading bots.

VEX Robotics Cad Designs

May 2020 – June 2025

[Renders/Files](#)

- CADded and designed my team’s robot prior to and during the season using well-known CAD software.
- Designed a new robot each season, with several prototype stages in between.
- Software Used:
 - Autodesk Fusion360, Autodesk Inventor, AutoCAD, Protobot

Technical Skills

Languages: Java, Python, JavaScript, HTML, CSS, VEXCode Pro C++ V5, PROS

Skills: AWS, Node.js, Express.js, MongoDB, Crontab, Multithreading, CAD

CAD Software: Autodesk Fusion360, Autodesk Inventor, AutoCAD, Protobot