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, New Jersey.
- Captained my team to a successful season every year, 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, and 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 annual school yearbook.
- Collaborated with other staff members and faculty advisors to facilitate timely and error-free production.
- Led a team of assistant proof editors and other staff members to maintain high editorial standards.

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.
- Supervised and guided other staff writers throughout the year.
- Personally wrote 3-4 articles per year and edited/proofread 10-15 others written by staff writers.

Curriculum Committee   September 2023 - Present
Grade Representative (Selected via school administration and application essays)
- Collaborated with Department Chairs and school administration to shape the Upper School curriculum and assess new course proposals.
- One of only two students chosen to represent the entire grade.

Newark Academy Boys Tennis Team   September 2021 - Present
Junior Varsity (9, 10)
- Trained alongside 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 and educated students in cricket, teaching game rules, 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)
- Assisted in the establishment and design of the Clubs Committee, overseeing all Newark Academy clubs and activities.
- Collaborated with student and faculty leaders to plan and coordinate club-related initiatives.
- Analyzed and promoted student interest in Newark Academy's extracurricular programs.

Research, Summer, and Job Experiences

PACT – Program in Algorithmic and Combinatorial Thinking   Summer 2023
Selected through an application
- Studied discrete mathematics and theoretical computer science under Prof. Rajiv Gandhi.
- Explored topics such as combinatorics, probability, graph theory, and algorithms, to name a few.
- Generally based around the UPenn course CIS160.
- Received 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, covering multiple programming languages and electronic components.
- Delved into biomedical engineering, advanced mathematics, computer applications, and communications.

VEX IQ Instructor   November 2021 – Present
Teacher, Judge, Live Competition Help
- Worked/volunteered through Robot Revolution in Summit, New Jersey.
- Volunteered year-round to help run/judge elementary and middle school robotics competitions.
- Mentored younger VEX IQ students throughout the year, teaching basic robotics skills and block coding.
- Introduced elementary and middle school students to VEX IQ hardware and VEX block coding every summer.

Projects

VRC Scouting Website   August 2022 – October 2022
Github Repository / *Website* / *Demo*
- Developed a live competition scouting tool that ranks active VRC (VEX) teams to assist with scouting and alliance selection.
- Utilizes an algorithm based on thousands of GET requests to create a ranking and overall 'score' for each team, allowing for extremely efficient in-person scouting.
- Displays each team's features and all their awards/statistics, enhancing scouting efficiency.
- JavaScript, HTML5, CSS3
    - Node.js, Express.js, EJS, MongoDB, Mongoose, AWS EC2
- Website: rbalascouting.com
    - Username: rbala25
    - Password: 4610JPassword

JavaXchange   July 2023 – August 2023
Github Repository / *Demo*
- Developed a multithreaded mock stock market, recording transactions, matching BUY and SELL orders, and communicating with each individual trading bot through serialization and deserialization.
- Allows for trading bots to run different "strategies" in an attempt to generate the most profit.
- Used the Twelve Data API to generate a data file containing the price of AAPL for every minute between June 2021 and January 2023.
- Parsed this .txt file to create a Market Making Bot which sends a new order based off each AAPL price point 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 industry-standard 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