Yash Shah

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Education

Rutgers University, New Brunswick — New Brunswick, NJ

Bachelor of Science in Computer Science and Economics with a minor in Mathematics — *May 2026*

- **Activities:** Rutgers Competitive Programming, Data Science Club, Cloud Computing Club, Omicron Delta Epsilon (Economics Honor Society), Hack4Impact, Association of Indians at Rutgers, Habitat For Humanity
- **Relevant Coursework:** Data Structures, Computer Architecture, Intro to Discrete Structures, Multivariable Calculus, Data101, Intro to Linear Algebra, Intermediate Microeconomic Analysis, Intro to Statistics
- **Major GPA:** 4.0/4.0;
- **Cumulative GPA:** 3.6/4.0;

Experience

Lead Instructor — May 2021 - May 2022

Mathanasium — *Edison, NJ*

- Contributed to a 25% year-over-year increase in student retention through the successful execution and implementation of modern teaching methods, resulting in elevated engagement and optimized learning outcomes
- Utilized data-driven insights to develop a personalized curriculum based on historical academic performance and learning preferences, resulting in an average of 2 grade-level improvements in proficiency over 6-month intervals

Projects

Polyhymnia.ai (HackPrinceton) | *Next.js, TypeScript, MongoDB, Python, TensorFlow* — November 2023

- Contributed to an end-to-end musical web app that generates personalized sheet music based on user proficiency level with their choice of instrument using a Markov chain-based algorithm, optimal for scale
- Implemented an assessment algorithm within the app to evaluate and score users' musical performance in pitch, rhythm, and timing, and adjusted the users' overall proficiency score according to the result
- Utilized **Next.js** and **MongoDB** for front-end and database while using a combination of musical libraries (such as Lilypond and Midi) to convert from sheet music to text, alongside deep learning libraries like **TensorFlow**

Sourceify | *Next.js, TypeScript, Python, Flask* — October 2023

- Developed a full-stack web application using the Metaphor API to generate a list of relevant sources based on user inputs that emphasized user-friendly design and efficient and accurate source retrieval
- Utilized **Next.js** for front-end development, taking advantage of its server-side rendering and routing features, and **TailwindCSS** for visually appealing design
- Configured a **Flask** server for the back end to process post API requests and process the data to be returned as JSON to be displayed

Rutgers Foodies | *React.js, TailwindCSS* — September 2023

- Parsed data for 150+ events from the Rutgers getInvolved website by reverse-engineering the API and converting it to a pandas data frame for those that had the benefit of free food and exported it as a JSON file
- Designed a dynamic and responsive user interface with **React.js** and utilized **TailwindCSS** to style the website for optimal user engagement and experience
- Enhanced the application's ability to scale by optimizing server resources and database queries, enabling smooth performance and consistent user experience for 100+ Rutgers students accessing the platform

Pairs Trading Script | *Python, pandas, NumPy, SciPy, Matplotlib* — June 2023

- Analyzed historical daily price data for two correlated stocks and utilized **pandas** and **NumPy** to construct a data frame to store returns of each stock relative to the previous day's closing price, enabling analysis of performance
- Identified key divergence points between the two correlated stocks by developing a unit root function that executed T-tests to assess the statistical significance of the divergences, optimized utilizing **SciPy**
- Generated trading signals based on the analysis outcomes, determining opportune moments for trading, calculated gross/net returns, and bench-marked them against the market, returning an alpha value to gauge performance

Technical Skills / Other

Technical Skills: Python, Java, JavaScript, TypeScript, R, React, Next.js, HTML/CSS, TailwindCSS, Node.js, Express.js, Flask, PostgreSQL, MongoDB, pandas, NumPy, SciPy, TensorFlow, Scikit-learn, Matplotlib, Seaborn, Git
Interests: Board Games, Chess, Cars, Coffee, Piano, Bagels, Photography, Hiking, Basketball, Formula 1