

Harshil Machhi

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Education

Rutgers University

B.A. Computer Science, B.S. Data Science

New Brunswick, NJ

May 2025

Relevant Coursework: Deep Learning, Data Science, Regression Methods, Applied Statistical Learning, Algorithms, Data Structures, Databases, Computer Architecture, Linear Algebra, Calculus III

Experience

Software Engineer Intern

Barclays | Java, Typescript, Spring Boot, Maven, React, Node.js, REST APIs

June 2024 – Aug. 2024

Whippany, NJ

- Engineered a compliance tool in Java that automates the extraction and comparison of 500+ commit histories from Bitbucket against JIRA stories, ensuring strict adherence to release scopes, reducing production outages by 95%
- Designed and implemented REST APIs that facilitated seamless communication between JIRA and Bitbucket, improving data validation processes and reducing manual errors by 75%, leading to a reliable deployment pipeline
- Spearheaded the development of a cutting-edge solution with React and Node.js, streamlining the review process for unplanned commits; enabling 50% faster review of unplanned commits and used by over 12 divisions at Barclays

Teaching Assistant

Rutgers University

Aug 2023 – May 2024

New Brunswick, NJ

- Designed and implemented collaborative learning strategies for 150+ Calculus I students with faculty, improving course engagement and feedback scores by 40% through an inclusive and interactive environment.
- Developed a structured, data-driven learning program that supported 60+ students weekly, achieving a measurable 20% boost in exam performance through tailored problem-solving sessions and hands-on calculus applications

Projects

Trendify.ai | *Python, TensorFlow, Pytorch, Scikit-learn*

October 2024 – Present

- Developed a dynamic song recommendation system using LSTM models to analyze user preferences via Spotify's API and a Kaggle dataset of 1.4M tracks, achieving a ~ 0.02 training loss for personalized music recommendations
- Fine-tuned a pre-trained BERT model for NLP-driven playlist generation, mapping contextual embeddings from user prompts to audio features via a regression neural network trained with MSE loss
- Preprocessed and transformed large datasets from Spotify's API and Kaggle (1.4M+ songs) to ensure clean, structured inputs for training LSTM and NLP models, enabling accurate user-specific recommendations and prompt-driven playlist generation.

FlightLink | *Java, SQL, HTML, CSS, JavaScript, JDBC*

December 2023

- Engineered a fictional relational database system optimize online travel reservation operations; improved data retrieval speeds by 40%, enhancing user experience for over 1000 daily transactions in a scalable framework
- Designed and developed a responsive web application with advanced search algorithms, secure user authentication, and role-based access control, improving system reliability and reducing simulated booking errors by 30%
- Engineered analytical tools to extract insights such as top revenue-generating flights by implementing advanced SQL optimizations and indexing strategies, achieving up to 25% faster query performance in simulated large-scale data environments

RURideShare (HackRU Runner Up) | *Python, SQLite3, HTML, CSS, JavaScript, Flask*

October 2023

- Developed a campus ride-sharing platform enabling students to post and join rides in real-time, reducing bus congestion and improving transportation efficiency. Processed 500+ rides in the first month with Flask-powered backend systems, cutting user inquiry response times by 40%
- Integrated Google Maps API for dynamic route mapping and real-time ride tracking, enhancing user trust and scalability while reducing driver location inquiries by 40% for 5,000+ users

Technical Skills

Languages: Java, Python, C/C++, SQL, JavaScript/TypeScript, HTML/CSS, R

Frameworks: React, Node.js, Flask, Keras, SpringBoot, JDBC

Developer Tools: Git, Docker, IntelliJ, Visual Studio, Eclipse, Jupyter Notebook, Google Colab

Libraries: TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn