ARMAAN PATANKAR

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EDUCATION

Brown University Providence, RI | Expected May 2026

Sc.B in Computer Science – AI/ML & Systems, *A.B. in Business Economics* *GPA*: **4.00/4.00**

Relevant Courses: Software Engineering, Data Structures and Algorithms, Machine Learning, Deep Learning, Computational Linguistics, Computer Systems, Software Securities and Exploits, Adv. Discrete and Statistics, Linear Algebra, Operations Research

Involvement: Chair of the Econ DUG, Strategy Consultant for *The Atlantic*, Junior Leader for Brown Applied Computing

PROFESSIONAL EXPERIENCE

Web Developer • Brown Political Review September 2023 – Present

- Implemented a robust CMS using **WordPress** to manage 500+ historic student articles; reduced page load times by **40%** and **improved site reliability by 30%** through automated server scaling and optimized database queries.
- Overhauled the BPR website using **React.js** and **Next.js** for a modern frontend experience, redesigned article previews with responsive layouts, converting 20% of print magazine-only readers to digital readers.
- Spearheaded and led the development of the "Brown Games" section by implementing four logic games and a campus-wide leaderboard, utilizing a Redis database for user scores; drove over **300+ student account creations** within one month.

Full-Stack Software Engineer • Full-Stack@Brown January 2024 –Present

- Aided in the development of the Conversational AI Lab's website, utilizing **React.js** and **Tailwind CSS** to create a fully responsive and mobile-friendly interface utilzing ***AGILE*** methodologies to maintain a **95% on-time** sprint completion rate.
- Designed and implemented a comprehensive digital database using **PostgreSQL** and integrated *Elasticsearch* to enable advanced search capabilities, enhancing retrieval efficiency and scalability for over 300+ student records and archives.
- Collaborated with a **cross-functional team** of 5 RISD designers and 4 developers to translate detailed Figma prototypes into functional web interfaces to enhance peer learning and collaboration

Incoming Deep Learning Teaching Assistant • Brown University January 2025 –Present

- Collaborate with course instructors and teaching staff to develop assignments and labs that emphasize real-world applications of deep learning concepts, spanning topics such as neural network quantization, generative models, and attention mechanisms.
- Lead **weekly discussion sessions** for over 50 students to deepen understanding of key topics, including convolutional neural networks (CNNs), recurrent neural networks (RNNs), and transformer architectures, fostering collaborative problem-solving

FEATURED PROJECTS

2024 Presidential Election Prediction Model • *BPR Data Team* • *Machine Learning, Data Science* November 2023-Present

- Engineered a comprehensive data pipeline using **Selenium** and **BeautifulSoup** to scrape and parse over 5 million records from 2002-2022, encompassing 100+ variables such as incumbency, campaign finance, and polling data
- Implemented a **LightGBM** classification model with **1000+ decision trees** to predict election outcomes, achieving a weighted average F1-score of 71%, demonstrating proficiency in balancing precision and recall for robust predictions.
- Deployed an **automated** prediction update pipeline using **GitHub Actions** and **AWS** services (*Lambda, S3*), enabling daily refreshes of election predictions based on new data and powering real-time visualizations on www.24cast.org.

Earthquake Prediction Modeling • *Deep Learning, Data Science* May 2024

- Engineered and trained an LSTM Recurrent Neural Network (RNN) using TensorFlow to **predict earthquake occurrences**, leveraging a unique dataset **of 27+ million** ground acceleration time-series measurements from 2017-2020.
- Modeled earthquake probability by leveraging hidden state outputs of the RNN to construct a mixed Weibull distribution to model seismic activity within a given interval, achieving approximately 80% accuracy on back testing using the validation dataset.
- Assembled a Python-based data pipeline using **AWS S3 and EC2** to process and analyze 1,200+ seismic events, enhancing data accuracy and **decreasing processing time by 40%.**

TextSwap: Campus Textbook Marketplace • *Software Engineering* November-December 2024

- Developed *TextSwap,* a full-stack web application using **React.js** and **Java**, facilitating a peer-to-peer marketplace for 1,000+ Brown University students to buy and sell used textbooks.
- Implemented scalable **RESTful API** endpoints and a **Firebase** database schema to support textbook listing, retrieval, and search features, ensuring seamless real-time interactions with 100+ simulated listings during testing.
- Led the development of an end-to-end testing suite using Playwright for both frontend and backend, **achieving 95% test coverage** and resulting in an estimated **80% reduction** in reported bugs.

SKILLS AND INTERESTS

Programming Languages: Python, Java, JavaScript, TypeScript, C, C++, SQL

Frameworks & Libraries: PyTorch, TensorFlow, Keras, NumPy, pandas, React, Next.js, Node.js, Playwright, Tailwind CSS, Express

Tools & Platforms: Git, Docker, PostgreSQL Firebase, MongoDB, Google Colab, VS Code, Figma, Postman