

Rafay Khan

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EDUCATION

Princeton University

Princeton, NJ

Bachelor of Science in Engineering, Computer Science, GPA: 3.8

September 2021 - May 2025

Relevant Courses: Algorithms and Data Structures, Probability and Stochastic Systems, Linear Algebra, Discrete Math, Advanced Programming Techniques, Programming Systems, Machine Learning, Data Science

EXPERIENCE

Princeton Emma Bloomberg Center for Access and Opportunity

Princeton, NJ

Software Developer

June 2022 - Present

- Created marshmallow, responsible for connecting 1000+ students to mentors, reducing an 8-hour task to 5 seconds
- Created ranked-choice-assigner, responsible for placing 300+ students in campus events with 98% satisfaction
- Constructed several datapipelines to handle inconsistent spreadsheet data, streamlining code consistency across several projects
- Modularized and linted codebases of multiple projects, paving path for extensive refactoring and optimal testing
- Added logging across several projects, streamlining debugging and information reports

QuantCap

Cambridge, MA

Software & Machine Learning Intern

December 2022 - January 2023

- Constructed datapipelines using PANDAS, producing technical analysis indicators for over 3.5GB of historical market data
- Consumed APIs for live market data, collecting with Python and SQL for downstream technical and sentiment analysis
- Generated data visualizations and performed analysis, extracting features for several market prediction models
- Performed model optimization, tuning hyperparameters on several market regression and classification models
- Developed documentation and enforced modular programming principles across the team's codebase

Princeton Department of Computer Science

Princeton, NJ

Teaching Assistant, Algorithms and Data Structures

February 2023 - May 2023

- Taught ~ 45 students Advanced Java OOP implementation techniques and paradigms
- Supplemented core curriculum with software engineering principles of modularity, encapsulation, abstraction

Princeton Center for Digital Humanities

Princeton, NJ

Course Assistant, Python Data Analysis

June 2022 - August 2022

- Educated ~ 15 students about fundamental computer science constructs and ML algorithm paradigms
- Taught students data scraping, cleaning, and analysis conventions using PANDAS
- Assisted students in their construction of social media web scraping projects

PROJECTS

Stopwatch Calendar | Tracks and logs stopwatch sessions to Google Calendar

Python

- Maintains a module for Google Calendar API interactions, querying user on whether to log study session
- Constructed a module for handling SQL database interactions, abiding by separation of concerns paradigm
- Abided by an object-oriented design paradigm, maintaining several encapsulated abstract datatypes

Marshmallow | Connects first-generation, low-income students to mentors, faculty, and staff

Python

- Generates formatted match reports, identifying missing students from the program
- Dockerized project, increasing project portability and deployment
- Developed a regular expression based name-matching algorithm, resulting in a 95% match rate

Ranked Choice Assigner | Places students into respective campus events based on ranked-choice votes

Python

- Ingests google forms and sheets information, extracting student ranked-choice votes and circumstances
- Adhered to principles of data abstraction, creating OOP Event and Person abstract datatypes
- Constructed a metrics module identifying student top and preferred choice satisfaction rate

Image Classifier | Implements a Multi-Layer Perceptron for classifying handwritten digits

Java

- Developed a modular, encapsulated Perceptron abstract datatype
- Trained Perceptron ADT instances for use in multi-classification neural layer
- Implemented feature extraction for several MNIST image datasets

SKILLS

- Languages:** JavaScript/TypeScript, Go, Python, Java, C/C++, HTML/CSS, R, ARM Assembly
- Frameworks:** React, Google App Engine, Redux, Django, Django Rest Framework, Flask, Vue, Tailwind CSS, Bootstrap, Qt, Google Cloud,
- Tools:** PANDAS, NumPy, TensorFlow, SciKit-Learn, Matplotlib, Seaborn, Anaconda, Jupyter, Google Colab
- Other Technologies:** SQL, MongoDB, Docker, Redis, Git, Bash, Unix, Linux, Node, Office Suite, Google Suite