Ben Rosenberg

Website: https://benrosenberg.info | Email: benjaminrosenberg42@gmail.com | Phone: (347) 306-4972 | GitHub

Education

Bachelor's | 2023 | Cornell University

- Major: Operations Research Engineering
- Minors: Computer Science, Mathematics
- GPA: 3.526; Dean's List
- Relevant coursework:
  - CS 1110: Intro to CS (Python)
  - CS 2110: OOP & Data Structures (Java)
  - CS 3110: Data Structures and Functional Programming (OCaml)
  - ENGRD 2700, ORIE 3500: Probability & Statistics for Engineers I and II (R)
  - ORIE 3120: Data Science (SQL, ML in Python – scikit-learn, pandas)
  - ORIE 3300, ORIE 3310: Optimization I and II (AMPL)
  - ORIE 4580: Simulation, Modeling, and Analysis (NumPy)
  - ORIE 4741: Learning with Big Messy Data (NumPy, pandas)

Summer student | 2021 | Queens college

- GPA: 4.0
- Relevant coursework: CSCI 211: Intermediate C++; CSCI 320: Theory of Computation; CSCI 331: Database Systems; ECON 215: Money and Banking

High School | 2019 | Paul D. Schreiber HS

- GPA: 5.0/4.5 weighted
- SAT: 1520; ACT: 35
- National AP Scholar, National Merit Finalist, National Honor Society, top 1% of graduating class

Experience

Risk and Investments IT Intern | Global Atlantic Financial Group | Summer 2022

- Created user-facing control reports on trade booking and position booking, using Beacon (Python) and SQL
- Used the pandas package in Python to parse SQL query results and perform joins to extract and combine data

Teacher's Assistant (CS, ORIE) | Cornell University | Fall 2020 – Present

- Fall 2020, Spring 2021, Fall 2021, Fall 2022: CS 1110: Intro to CS with Python
- Summer 2021: CS 2110: OOP & Data Structures in Java
- Spring 2022: ENGRI 1101: Engineering Applications of Operations Research
- Spring 2022: ORIE 3310: Optimization II
- Responsibilities:
  - Hosted weekly office hours and lab sessions, answering student questions about concepts and assisting with assignments
  - Reviewed student code and/or homework submissions, assessing functionality and assigning grades on assignments and exams

Projects

Gun Violence Analysis (Python [Pandas], SQL)

- Analyzed 5 years of data on gun violence, and performed various regressions to characterize gun violence as clustered, seasonal, and climate-dependent: results, GitHub

Discord bots (Python [Discord.py])

- Created several different bots to perform useful tasks, such as rendering LaTeX, solving equations, and compiling Pandoc Markdown to PDF: explanations of each
- Updated a Discord bot for playing chess to the latest version of the Discord.py API; added extra functionality such as draws and resignation: GitHub

FSM Quest (OCaml)

- Made a game in OCaml about finding the correct representation of a regular expression as finite state automata (DFAs and NFAs). Received a grade of 100% on the assignment
- Needed to develop and implement several algorithms with teammates, including algorithms to translate strings to regular expressions, regular expressions to NFAs, and NFAs to DFAs; to minimize DFAs; and to compare minimized DFAs for similarity under isomorphism
- Created a rudimentary GUI using the Bogue GUI library and Graphviz, and solved various problems involving concurrency and backend operations
- Made an online tutorial for the game, which included background information on relevant Theory of Computation concepts (finite state machines, regular expression parsing) and a list of commands that could be used to play the game and their purposes

Scripts and utilities (Python)

- Wrote several scripts in Python to help with Linux workflow: e.g., compiling text documents with LaTeX inline to work with the suckless `sent` application (GitHub); converting files written in Pandoc Markdown into a series of PNGs compatible with the WEBTOON format (GitHub)
- Simple truth table generator with support for AND, OR, NOT, and IMPLIES operations (and parentheses); uses Dijkstra's Shunting-Yard algorithm to parse user input, and can generate ASCII or LaTeX output (GitHub)

Skills

Programming languages and systems

- Python, Java, C++, R, Bash, LaTeX, HTML, CSS, SQL, AMPL, OCaml; Linux/UNIX