Samarth Arul

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EDUCATION

Northwestern University **June 2025**
Bachelor of Arts in Computer Science and Mathematics *Evanston, IL*

- **GPA:** 3.9/4.0, Dean's List
- **Relevant Coursework:** Data Structures and Algorithms, C/C++ Programming, Mathematical Game Theory, Multivariable Calculus, Linear Algebra, Probability and Statistics

EXPERIENCE

Kitchen Kapital **June 2023 – Present**
Software Engineer Intern *Chicago, IL*

- Developed and integrated a data-access tool (Python, BeautifulSoup, Selenium) to collect public restaurant ratings
- Created a custom web-crawler to parse restaurant social media site data and return information in JSON format
- Designed and integrated web report-generation service in Node.js, Express, and React.js to handle user requests
- Reduced automated API-call costs by 70% while collecting/storing data from Google, DoorDash, UberEats, etc.

Department of Computer Science, Northwestern University **May 2023 – Present**
Research Intern *Evanston, IL*

- Utilizing Linear Programming and Gurobi Optimization techniques to improve time-efficiency of meeting allocation for Graduate CS Department. Applied C++ w/ Google Calendar and Gurobi APIs to develop backend operations
- Optimizing scheduling algorithm to automatically schedule meeting slots between >45 faculty and PhD students for Graduate Student "Visit Day", requiring fairly distributed schedules to be delivered to users in easy-to-read format
- Time-efficiency improvements >90%; communicating design/development progress with key stakeholders

Illinois Institute of Technology **June 2021 – Oct. 2021**
Research Intern *Chicago, IL*

- Employed Python and BeautifulSoup to web scrape scholarly literature and data on idiosyncratic deals (i-deals)
- Analyzed correlations in data, produced final report, and presented findings and data at research forum (SPARK '21)

Institute for Policy Research **Jan. 2021 – June 2021**
Research Assistant *Evanston, IL*

- Retrieved data from SEAN Database to document/analyze health-related trends across states in late 2020 and 2021
- Tested software tools (e.g. Qualtrics) and analyzed/validated data visualizations made with Datawrapper software
- Co-Authored research report public health trends (https://osf.io/ywk4a/) with faculty from Northwestern, Harvard, Rutgers, Northeastern, etc. Contributed to paper's data analysis/graph visualization and report on statistical trends

PROJECTS/OTHER EXPERIENCE

Northwestern Responsible AI **Oct. 2022 – Present**
Machine Learning Projects Team *Evanston, IL*

- Applied collaborative filtering with SciKit Learn on the MovieLens 25M Data Set to create movie recommendations
- Designed TF-IDF search engine to find movie given user input; used Pandas/NumPy to process intermediary data

Stock Price Analysis (Python) **Dec. 2022**

- Applied Random Forest Classifier w/ SciKit Learn to historical data on Yahoo Finance to predict stock price change
- Implement backtesting engine to improve model accuracy; use quarterly/annual rolling price averages as indicators

Dinosaur Runner (C++) **May 2023**

- Re-created Google Dinosaur Runner in C++ with GE211 C++ engine; applied model-view-controller framework to accept user inputs, display live score, animate actions, indicate scoring milestones with sound, and adjust game states

ADDITIONAL

Languages: Python, Java, HTML/CSS, JavaScript, SQL
Technologies/Tools: MySQL, Node, Express, Postgres, JupyterLab, AWS, Agile, Linux, Git, Salesforce
Awards: Network Infrastructures (FBLA) State Champion, National Merit Scholarship, Presidential Scholar Semifinalist