

Pranav Rajan

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Education

University of Utah – Salt Lake City, UT

May 2023

MS Computing: *Human-Centered Computing*, Minor Piano Performance

Coursework: Distributed Systems, Operating Systems, Advanced Data Visualization, Scientific Visualization, HCI, Advanced HCI, Computer Architecture, Algorithms

Head Teaching Assistant: Introduction to CS (350+ students), Visualization for Data Science (192+ students)

University of Utah – Salt Lake City, UT

May 2021

BS Computer Science, Minor Piano Performance

Coursework: Computer Systems, Data Mining, Database Systems, Scientific Data Computing, Software Practice I, Software Practice II, Algorithms

Experience

Rocket EMS – Software Engineering Intern

May 2022 – Aug 2022

- Engineering owner for database pipelines: supported efforts to streamline database querying performance, data gathering and visualization for data analysts and engineering staff to senior management and stakeholders
- Created a new derived table schema pipeline to process and gather data from five different relational databases
- Wrote SQL scripts to consolidate 3gb of data into custom PowerBI Visualization Schemas
- Implemented custom PowerBI Visualization Schemas with SQL and DAX scripts

University of Utah CEE Transportation Group – Software Engineering Intern

Oct 2021 – Dec 2021

- Researched and built full-stack visualization application for visualizing electric bus charging and charge optimal bus routes
- Designed charts, user interface, interactions and data pipeline for visualizing spatial and tabular data concurrently on the web
- Implemented data pipeline to combine ArcGIS files and custom transit data files into JSON for interactively visualizing bus routes with D3 on the web saving 3 hours per month of data transformation, custom time-series data visual encodings with JavaScript, CSS and widgets for dynamically changing visualizations and data based on user selected optimization plans

Visualization Design Lab – Undergraduate Researcher

Jun 2020 – Sep 2021

- Researching and developing multivariate network visualization tools to enable large-scale visualization and analysis of networks (social, physical, biological, social science, literary)
- Designed and built user interface with TypeScript, Vue, D3 for aggregating and visualizing aggregated multivariate networks on the web removing offline intermediary transformation process to visualize aggregated multivariate networks on the web
- Rewrote the Pivot Graph Algorithm to aggregate matrix representations of multivariate networks in a web browser
- Co-authored paper ([IEEE VIS 2021](#)) on network visualization techniques
- Refactored MultiMatrix codebase to enable dynamic visualization on the web
- Implemented scalable labels for large network visualization with MultiMatrix **improving readability from 40% to 90%**

Honeywell Inc. – Software Engineering Intern

May 2019 – Jul 2019

- Researched and benchmarked the performance of different machine learning approaches (classification, random forests, and neural networks) for use in future Honeywell products

Projects

Map Reduce - Parallel fault-tolerant version of MapReduce

[Github](#)

Raft - Distributed Systems Consensus Algorithm + Fault-Tolerant Store

[Github](#)

Curly Language DSL - Domain Specific Language, Interpreter, Type Checker

[Github](#)

Skills

Languages: Golang, JavaScript, TypeScript, C++, C, x86, Unix, HTML, CSS, SQL, R, Node

Tools: GIT, D3, Vue, Svelte, Postgres, SQLServer, MariaDB, Docker, Bash, Flask, Numpy