

Pranav Rajan

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Education

University of Utah Aug. 2017 – May. 2023 (Expected)

M.S. Computing, B.S. Computer Science with a Minor in Music

Relevant Coursework: Distributed Systems*, Operating Systems*, Algorithms, Databases, Data Structures, Scientific Visualization*, Big Data Visualization*, Information Visualization, Computer Systems, HCI*, Computer Architecture, Data Science. *Graduate

Honors and Programs: 2022 Eyeo Festival Student Volunteer, NSF REU Scholarship 2020-2021, 2021 UROP Scholarship, IEEE VIS 2021

Experience

Kahlert School of Computing

Graduate TA (CS 6630), Head TA (CS 1420, CS 6017) | Visualization Engineering, OOP Programming, Data Science

*Salt Lake City, UT
May 2021 – Dec. 2022*

- CS 6630 (Graduate Data Visualization). Wrote class assignments, graded exams, mentored student projects and held weekly office hours (8hrs/week) covering web visualization development (HTML, CSS, JavaScript, D3.js), data storytelling and functional programming for 192 students
- CS 6017 (Graduate Data Analytics and Visualization). Taught weekly labs to 35 students, graded assignments, held weekly office hours(10hrs/week), edited grading rubrics, helped administer exams for 350 students
- CS 1420 (Accelerated Introduction to Computer Science). Taught weekly labs to 35 students, graded assignments, held weekly office hours(10hrs/week), edited grading rubrics, helped administer exams for 350 students

Rocket EMS

Software Development Intern | Data, Backend | SQL, PowerBI, C#, DAX

*Santa Clara, CA
Jun. 2022 – Aug. 2022*

- Built a database pipeline to consolidate data from 5 different databases for company KPI reports
- Created new database schemas for migrating data between databases and PowerBI
- Investigated new methods for how automate reports using C# and PowerBI

Utah Visualization Design Lab

Research Assistant | Fullstack + Visualization Engineering | D3.js, Vue, Vuetify, HTML, CSS, TypeScript, Python, Git

*Salt Lake City, UT
Jun. 2020 – Sep. 2021*

- Researched interfaces, techniques, tools, and domain applications for visualizing multivariate networks
- Designed and built novel user interface MultiAggr for visually aggregating multivariate networks using matrix layout
- Refactored MultiMatrix codebase for dynamic visualization. Implemented scalable labeling for visualizing large networks with MultiMatrix improving readability from 40% to 90%
- Co-authored and presented paper on [MultiAggr](#) at IEEE VIS 2021. Wrote [undergraduate thesis](#) on MultiAggr

Projects

RAFT Distributed Consensus Algorithm | Golang, gRPC, Distributed Systems

- Implemented RAFT Algorithm: Leader-Election, State Machine Replication Logs, Persistence from RAFT Research Paper
- Built a distributed key-value store that uses RAFT implementation that handles machine failure, network failure, replication, and get/put/set requests

MapReduce | Golang, gRPC, MapReduce, Distributed Systems

- Implemented MapReduce: Map Function, Reduce Function, gRPC handlers from MapReduce Paper

xv6-6460 | C99, Operating Systems

- Modified xv6 operating system adding crc32, checksum, lottery scheduler, freemem(), locks

Style Transfer Work Bench | Machine Learning, Style Transfer, HCI, Visualization, Python, Software Developer Tools

- Led a team to develop a novel user interface for debugging and visualizing the SqueezeNet Neural Network Architecture for Style Transfer Problem
- Responsible for visualization color maps, visualizing intermediate layers of activation functions, work bench UI design

Gap Minder | D3.JS, HTML, CSS, Visualization, HCI, Interfaces, Data

- Redesign of Hans Rosling's *Gap Minder* Visualization
- Features interactive exploratory analysis of GapMinder data using linked views (scatterplot, map) that dynamically update visualize country statistical data based on user interaction

Technical Skills

Programming Languages: Python, Golang, JavaScript, SQL, Java, C, C++, R

Web Technologies: D3.js, TypeScript, HTML, CSS, Vue, Vuetify, Svelte, Gin

Tools + Miscellaneous: Git, Unix, Linux, gRPC, Vite, node, functional programming, data visualization, user interfaces