Narun Raman

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Education

Carleton College *Northfield, MN*

Bachelor of Arts in Computer Science, Mathematics, and Public Policy *September 2016 – June 2020*

- **University of British Columbia**, Vancouver, Canada — *Research in an External University Fall 2019*
- **University of Cambridge**, Cambridge, England — *Semester Abroad Summer 2019*

Skills

Languages Python, Java, JavaScript, C, R, Scheme, SQLite, Postgres
Frameworks Django, React, Flask

Experience

Overlay Inc. *Menlo Park, CA*

Software Engineer Intern *June 2018 - Sept. 2018*

- Developed and implemented an edge detection algorithm in an existing iOS AR platform.
- Application is for surveyors building topographical maps via iPhone AR camera.
- Algorithm built to detect and distinguish between the top of a telephone pole and surroundings to enable ease of use for surveyors.

View Inc. *Milpitas, CA*

Pilot R&D Intern *June 2017 - Sept. 2017*

- Devised and automated the failure analysis of electrochromic glass.
- Worked with failure experts to develop a streamlined workflow from field analysis to cleaned data and corresponded with factory in Missouri to understand critical failures.
- Presented the work to the FA group and pointed to key places for improvements and showcased a basic computer vision model for automation.

Projects and Research

End to End Provenance tool

- A tool for displaying and connecting data provenance from the application level through to the system level.
- Visualized through the same model written in Python and R, was able to, for the first time, fully implement end to end provenance collection.
- Development in user and kernel space, in order to make a multi-language tool working on any platform.

Reproducing Lars-Erik Cederman's IR Model

- Rebuilt the seminal work by Lars-Erik Cederman's agent-based model from "Emergent Actors in World Politics" trying to validate the data that he extracted and the analysis he presented.
- Built in NetLogo and analyzed csv data in Python using pandas and Jupyter notebooks.

ALCH: An Imperative Language for the CRN-TAM

- A high-level language in C to simulate the Chemical Reaction Network-Controlled Tile Assembly Model.
- Working off of Erik Winfree and Nicholas Schiefer's CRN-TAM construction, developed a model to simulate the mechanics of the system.
- Using the language, we were able to show certain properties unique to the CRN-TAM, and give a schema for a well-known problem: strict construction of the Sierpinski Triangle.

Shy-Trumper

- Agent-based model trying to elucidate the proportional impact of political reasons for how the polls "missed" Trump.
- Motivated by hypotheses that due to President Trump's norm-breaking campaign, supporters polled by a live interviewer may hedge their true beliefs.
- Models supposed non-response bias in polling and hopefully offers a tool for users to determine the impact of biased agents in an electorate.