Aditya Singhania

(+65) 8840-3384 | aditya.singhania@u.yale-nus.edu.sg | LinkedIn

EDUCATION

Yale-NUS College, Singapore **Aug 2020 - May 2024**
BSc. (CAP: 4.83/5.00) | Major: Mathematical, Computational, and Statistical Sciences | S$82,000 Yale-NUS Merit Scholarship
Yale University (Y-VISP), New Haven, Connecticut *Jan 2023 – May 2023*

Modern School Vasant Vihar, New Delhi, India **Aug 2004 - Mar 2019**
Central Board of Secondary Education | ACT: 35/36 | Graduated with a 100% in Computer Science and an overall average of 96.25%.

EXPERIENCE

Singapore Institute of Technology **Singapore**
Research Assistant to Associate Professor Michael Gastner *Jul 2023 – Present*

- Implemented code to generate dynamic visuals enhancing academic presentations, debugging efficiency and external contributions.
- Produced key research materials, including scholarly writing, explainer-videos for human-subject experiments and vital production code.
- Assisted in preparing, refining, and presenting code-based research findings at two international conferences.

Synthesis Creative Data House **Singapore**
Software Engineering x Data Science Intern *May 2023 – Aug 2023*

- Sped up web post scrapers for various social media platforms by up to 20x by intercepting network calls, and making them async.
- Automated data workflows using Google Cloud Platform and migrated local workflows to Cloud Scheduler, Cloud Functions, and Cloud Run.
- Collaborated with Consultants, Strategists and Data Scientists to optimize data workflows for client-facing dashboards.

Paytm **New Delhi, India**
DevOps Intern *Jun 2022 – Aug 2022*

- Created ansible roles, bash scripts and cron jobs to automate tasks on production server.
- Imported existing AWS infrastructure to terraform by using terraformer to "reverse-terraform," allowing faster deployment.
- Automated deployment process with Jenkins pipelines written in Groovy, and created tests to pass before pushing to prod.

Yale-NUS College **Singapore**
C++ Developer, Research Assistant to Asisstant Professor Michael Gastner *Sep 2020 – Dec 2022*

- Refactored a C codebase for generating cartograms into C++, improving run time and fixing errors.
- Automated testing using shell scripts triggered with watchexec upon build, and GitHub actions.
- Simplified build system by moving from a plain Makefile to using CMake, allowing easy cross-platform builds.
- Migrated codebase to object-based model, making future development much easier.
- Sped up project by creating and managing agile workflow; code reviewed pull requests from various developers.

Optimization Engineer, Research Assistant to Professor Emanuel Mayer *Feb 2022 – Present*

- Upgraded key MATLAB infrastructure without prior experience, reduced runtime from one week on server to 20 minutes on laptop.
- Initiated C++ project on planarization of bipartite graphs (listed as project “autograph” below).

IT Support Assistant *Aug 2020 – Dec 2022*

- Troubleshooted more than 1200 support tickets from close to 500 different users.

Peer Tutor: Introduction to Computer Science *Aug 2022 – Dec 2022*

- Facilitated 8+ hrs/week of tutoring to provide academic support and mentorship for Introduction to Computer Science course held in OCaml.

ADDITIONAL INFORMATION

- **Technical Skills**: C/C++ (CMake, Boost, CGAL), Python, OCaml, MATLAB, R (tidyverse), SQL, Shell Scripting, Data Visualisation, Git, Docker, Emacs/Vim (Spacemacs), Terraform, Google Cloud Platform, Amazon Web Services, types upto 160 WPM

PUBLICATIONS AND CONFERENCES

- 19th International Conference on Geoinformation and Cartography (Zagreb, Croatia | Sep 2023)
- 10th International Congress on Industrial and Applied Mathematics (Tokyo, Japan | Aug 2023)
- Gastner, M.T., Miaji, N.Z. & **Singhania, A.** (2022). Smooth Pycnophylactic Interpolation Produced by Density-Equalising Map Projections. Kartografija i geoinformacije, 21 (37), 60-68. https://doi.org/10.32909/kg.21.37.3

PROJECTS

- **tyler** Engineered a new approach to generate mosaic cartograms, drawing from core cartogram coding knowledge (output).
- **autograph** Creating a novel way to nearly-planarize and reconfigure bipartite graph to facilitates pattern-finding, under development here.
- **EvoSim** Developed a C++ program to simulate evolution of foraging organisms. Won 1st of 250 Yale-NUS participants. Available here.
- **ModExchange** Developed a comprehensive C++ stock-market simulator during high school, with CLI and GUI interfaces (screenshot).