

# ADITYA SINGHANIA

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## 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

### IT Support Assistant

Aug 2020 - Dec 2022

- Troubleshooted more than 1200 support tickets from close to 500 different users.
- Provided face-to-face support and technology advice to a diverse user base, helping non-tech-savvy individuals understand and utilize complex technical products effectively.
- Cultivated a friendly and welcoming environment, often being the first point of contact for users seeking guidance and support.
- Managed and maintained 100+ Mac devices, including software installations, troubleshooting, and simple hardware repairs.

### 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 Assistant 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).

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

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- **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](#)).