

ABHINAV GANESH

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EDUCATION

The University of Texas at Austin, Austin, TX

Bachelor of Science in Computer Science

Bachelor of Science in Mathematics

Certificate in Applied Statistical Modeling

May 2025

GPA: 3.9220/4.0

Relevant Coursework: Data Structures; Computer Architecture; Operating Systems; Algorithms; Statistics; Quantitative Finance; Stochastic Processes; Information Retrieval; Machine Learning; Essentials of AI; iOS Mobile Computing; Ethical Hacking; Cryptography

National University of Singapore - Semester Exchange

Jan 2023 - May 2023

EXPERIENCE

Esri, Redlands, California (Software Development Intern, Field Maps Team)

May 2024 - August 2024

- TypeScript, Playwright, StencilJS, Ember, OpenAI API, Python, Selenium
- Created framework to automate **end-to-end testing** workflows for web applications from Natural Language (NL) descriptions using **Reinforcement Learning (RL)** and **Large Language Models (LLMs)**. Working on publishing **research paper**.

Seton Stroke Institute/Department of Neurology, Austin, Texas (Undergraduate Research Assistant)

January 2022 - Present

- Python, R, pybids, nilearn, ANTs, OpenCV, Docker, multiprocessing
- Developed Computed Tomography (CT) **image processing** pipeline used on clinical stroke data to determine sex differences in stroke outcomes. Implemented customized **Machine Learning (ML)** techniques to process **low resolution image data**.
- Contributed to **open source** image processing libraries (ANTs, CT BET) and built Quality Assurance modules to validate image segmentation results for other teams in lab.

Quantitative Criticism Lab, Austin, Texas (Undergraduate Research Assistant)

December 2023 - Present

- Python, Tensorflow, BERT
- Implemented **context-based quote retrieval model** for Latin corpus to facilitate analysis of evolving perspectives on social constructs (e.g. equality, loyalty, etc.) through literature. Implemented Neural Network model to reduce error (MAE) **over 85%** from prior study.

Esri, Redlands, California (Software Development Intern, Field Maps Team)

May 2023 - August 2023

- TypeScript, StencilJS, ArcGIS, Python, LangChain, Chroma, FAISS, OpenAI API, LLaMA, HuggingFace
- Created **NL interfaces** to simplify tasks such as creating maps and building forms; created **Retrieval Augmented Generation (RAG)** systems with **over 90% correctness**. Experimented with combinations of chunking algorithms, Information Retrieval systems, and LLMs.

Hutter Research Group, Austin, Texas (Undergraduate Research Assistant)

August 2021 - August 2023

- Python, Scikit-learn, Seaborn, Pandas, NumPy, Matlab
- Performed **data analysis** and built customized **visualization tools** to investigate gas ionization characteristics and sensor data to aid with design of portable gas sensor.

UnitedHealth Group/Optum, Remote (Intern - Data Engineer Team)

June 2022 - August 2022

- Full-stack development (Java, Spring, HTML/CSS/JavaScript), SQL
- Developed internal tool with in-line editing for efficient comparison of databases during migration from on-prem to cloud. Took lead on webpage creation and Spring Boot API. Estimated to reduce time spent on developing queries **by 40%**.

PROJECTS

Parallelization of Novel OCR Error Correction Algorithm

April 2024 - May 2024

- OpenMP, C++
- Parallelized algorithm to correct results from Optical Character Recognition; **over 35x faster** than sequential code with **same accuracy**. Tested configurations across multiple levels of parallelization, caching, and data sizes.

CurbCut: A Mobile Application for Accessibility-Focused Routing

July 2023

- Kotlin, Flask, ArcGIS Maps SDK for Kotlin, PRAW, OpenAI API
- Android application to provide routes avoiding accessibility barriers based on user preferences, along with social media and chat interface functionality for help. **Finalist** team (top 8) in Esri intern Hackathon; presented to several hundred professionals

NUS Arts Festival 2023 - Light Years, Week Days, Singapore, Singapore

January 2023 - May 2023

- Collaborated with interfaculty team and professors to design and create wind chimes and capacitive touch keyboards using arduino. **Debuted as interactive art installation** outside NUS' YST Conservatory of Music.

StudySmart: A Tool to Extract Targeted Questions from Released AP Exams

August 2020 - May 2021, March 2022

- Python, Google Sheets API, Tesseract OCR, Natural Language Processing, Scikit-learn, RegEx, Pandas, Tkinter, PandasTable
- Created **labeled dataset** of 276 chunks of text scraped from AP curriculum to train NLP model to **classify ~1000 questions** scraped from previously released AP exams into units with **over 90% accuracy**. Designed and created **web application** to present data to help students focus on targeting specific areas to improve their scores.

SKILLS AND AWARDS

Awards: College of Natural Sciences University Honor Roll, 2x Finalist at Esri Annual Intern Hackathon (2023, 2024)

Programming Languages: Java, Python, C, C++, Javascript, TypeScript, R, HTML/CSS, Matlab