ABHINAV GANESH

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EDUCATION

The University of Texas at Austin, Austin, TX — May 2025

Bachelor of Science, Double Major: Computer Science and Mathematics; Minor in Applied Statistical Modeling

GPA: 3.9220

Activities and Societies: Association for Computing Machinery, Directed Reading Program, Filipino Students Association, Machine Learning and Data Science Club, Orange Bike Project, Texas Judo

National University of Singapore - Semester Exchange — Jan 2023 - May 2023

SKILLS

Technical/Computer Skills: *Advanced Java, Python; Intermediate C, C++, Javascript, TypeScript, R, Data Science; Basic HTML/CSS*
Languages: *Intermediate Spanish, Basic Tamil*

EXPERIENCE

Esri, Redlands, California (*Software Development Intern, Field Maps Team*) — May 2024 - August 2024

- *TypeScript, Playwright, StencilJS, Ember, OpenAI API, Python, Selenium*
- Explored **RL** and **LLM** based methods **to create Natural-Language based automated testing framework**. Achieved **accuracies over 75% before fine-tuning**. Presented findings to team; **Research paper** being written.

Seton Stroke Institute/Department of Neurology, Austin, Texas (*Undergraduate Research Assistant*) — January 2022 - Present

- *Python, R, pybids, nilearn, ANTs, OpenCV, Docker, multiprocessing*
- Developed CT **image processing pipeline** used on clinical stroke data to determine sex differences in stroke outcomes. Implemented **customized ML techniques to process low resolution** image data. **Contribute to open source** image processing libraries (ANTs, CT BET). Perform trial work with new softwares.

Quantitative Criticism Lab, Austin, Texas (*Undergraduate Research Assistant*) — December 2023 - Present

- *Python, Tensorflow, BERT*
- Implement **context-based quote retrieval model** for novel Latin corpus to facilitate analysis of perspectives on social constructs (e.g. equality, loyalty, etc.) over time using literature. Significantly **reduced MAE over 85% from** approach in **prior study**.

Esri, Redlands, California (*Software Development Intern, Field Maps Team*) — May 2023 - August 2023

- *TypeScript, StencilJS, ArcGIS Maps SDK for JavaScript, ArcGIS Python API, Python, LangChain, Chroma, FAISS, OpenAI API, LLaMA, HuggingFace*
- Built **NL interfaces** into current products for R&D; created **RAG** systems with **over 90% correctness**

Hutter Research Group, Austin, Texas (*Undergraduate Research Assistant*) — August 2021 - August 2023

- *Python, Scikit-learn, Seaborn, Pandas, NumPy*
- Performed **data analysis** and built **visualization tools** to investigate gas ionization characteristics and sensor data to aid graduate student 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. Projected to **reduce 40% time** spent on developing queries.

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*
- Under mentorship of Professor Suma Bhat from the University of Illinois at Urbana-Champaign. **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.

Certificates & Awards

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