

David Tanase

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EDUCATION

Texas A&M University

Expected May 2025

Bachelor of Science in Computer Science, minor in Mathematics

Current Relevant Coursework: Introduction to Computer Systems, Operating Systems, Computer Organization, Design and Analysis of Algorithms, AI, Machine Learning

Organizations: QuantA&M (Founder and Webmaster), Aggie Data Science Club

Cumulative GPA: 4.00 (Dean's List)

Honors and Achievements: Craig and Galen Brown Engineering Honors, Susan M Arseven '75 Academic Achievement Scholarship, Kathy & Brent Smolik Study Abroad Scholarship, Gary Allison Scholarship

EXPERIENCE

A&M Internet Research Lab, Student Research Assistant under Dr. Dmitri Loguinov

Expected Course of Action:

August 2024 – Present

- Perform experiments using a custom optimized web crawler to reveal underlying patterns in the structure of the internet
- Apply multithreading knowledge to construct high efficiency sorting algorithms and improve web crawler efficiency

TOPPAN Photomask, Full-Stack Software Developer

May 2024 – August 2024

- Improved automated excel macros to streamline the repair and fabrication process for photomask tool operators
- Constructed a program to extract repair log data from company records and identify key trends in tool productivity
- Developed a web application to summarize real-time tool data across each production stage, pinpointing bottlenecks

Singapore Math Tutoring, Software Developer

July 2020 – August 2020

- Created custom programs to generate randomized problem sheets, offering students a diverse set of math exercises
- Included adjustable difficulty options and produced comprehensive answer key PDFs for students to check their work

National University of Singapore Exchange Program, Student

August 2023 – December 2023

- Embarked on a semester-long journey to further studies in computer science, differential equations, and electricity & magnetism at a critically acclaimed university
- Cultivated cultural adaptability and interpersonal communication
- Developed a multifaceted global awareness through interactions a diverse population of international students

PROJECTS

Plant Classification Application (Java)

- Designed as a part of a hack-a-thon (TAMUhack) to quickly differentiate dangerous plants from safe ones
- Worked in a high intensity group setting, furthering skills in collaboration and conflict resolution
- Gained proficiency in using API calls, processing JSON files, and querying online databases to retrieve information

Compressed Sparse Row Graph Representation (Java)

- Designed and implemented a program capable of constructing a Compressed Sparse Row (CSR) graph data structure, providing superior memory efficiency compared to adjacency list and adjacency matrix representations
- Incorporated Breadth-First Search, Depth-First Search, and Dijkstra's Single Source Shortest Path algorithms to discover shortest flight paths and connections between any two airports

High Performance Graph Searching (C)

- Implemented optimized graph searching through the use of multithreading, mutexes, and semaphores
- Tested node discovery rates with a variety of graph search algorithms including BFS, DFS, A*, and Best First Search
- Designed a concurrency architecture to ensure the complete exploration of each BFS depth layer before proceeding

High Performance Wikipedia Indexing (C)

- Integrated a producer-consumer model to read and process buffered strings of text
- Optimized string counting to reduce computation time using a custom hash map data structure
- Achieved an average processing speed of up to 800 MB/s with all cores active

TECHNICAL SKILLS

C++, C, Java, Python, Windows API, Data Structures, Algorithms, Graph Theory, Prolog, PDDL, Scikit-learn, Pandas, Cryptography, HTML, Javascript, CSS