ALEXANDER N. CHIN

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EDUCATION

The University of Texas at Dallas, Richardson TX ***Expected graduation: Spring 2024***

- Bachelor of Science degree - Computer Science Major
- Member of the CS^2 Computing Honors Program - Fall 2022
- Cumulative GPA: 4.0

TECHNICAL SKILLS

Programming Languages:	Python, C/C++, Java, MIPS Assembly, Shell Bash
Web Development Tools:	JavaScript, CSS, HTML, Bootstrap, NodeJS, Canvas
Data Science Tools:	Jupyter Notebook, Pandas, NumPy, MatPlotLib, NetworkX, Regex, Spacy
Operating Systems:	Windows, UNIX/LINUX

WORK EXPERIENCE

Nano Spin Compute Lab, Richardson, TX ***Summer 2022-Current***

Research Assistant

- Spearheaded the development of logic-locking programs via creative applications of graph partitioning algorithms.
- Conceived a greedy algorithm to encrypt netlists by applying a deep comprehension of data structures and algorithms.
- Collaborated with another researcher to organize the encryption of more than 500,000 different netlists and ran them through a satisfiability solver to quantify algorithmic strength.
- Strengthened encryption times from 2 seconds to over 12 hours of encryption against a satisfiability solver.
- Visualized solve time graphs and encryption figures with the data science techniques and tools listed above.
- Authored a publication summarizing the project and submitted it to GOMACTech conference

PROJECTS

Sorting Visualizer ***Spring 2022***

- Implemented a display of 4 fundamental sorting algorithms while limited to the bounds of MIPS Assembly
- Synthesized advanced cache organization methods, stack manipulation, and dynamic memory allocation
- Optimized memory usage and managed a large volume of processes.

Cidercade Database ***Fall 2021***

- Designed a database by implementing a binary tree through object oriented programming techniques (nodes, pointers, and polymorphism).
- Parsed through administer commands (query, insert, delete, etc.) and implemented their functionalities.

Pentatonic Music Maker ***Spring 2019***

- Developed a music application that allows users to program music based on Pentatonic scale.
- Implemented adaptive metronome that calculates inputted BPM and organized note states.
- Visualized the music loop with a responsive graphical user interface composed of an array of 81 interactive tiles.

RELEVANT COURSEWORK

- Data structures and Algorithms
- Probability and Statistics
- Linear Algebra
- Discrete Mathematics
- Computer Architecture
- Digital Logic