Jerry Xu

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EDUCATION:

Carnegie Mellon University, Pittsburgh, Pennsylvania *December 2022*
B.S. in Computer Science, Minor in Mathematical Sciences

SKILLS:

- Languages: Python, C++, SQL, C, Standard ML, Lean, Prolog, Nyquist
- Software: Unix, Git, Django, Selenium, Bash, Shell, Make, Jupyter, Audacity, Linux Perf, GDB, Valgrind, RabbitMQ

EXPERIENCE:

The Boeing Company | Analyst Intern Jun 2022 – Aug 2022 | Long Beach, CA

- Developed a market intelligence report on aviation service market and carrier growth utilizing data from commercial market outlook reports published by Boeing, Airbus, COMAC, etc.
- Proposed and presented a digital solution to service engineering manager for integrating data across three traditionally siloed business entities: original equipment manufacturers, airlines, and maintenance-repair-overhaul operators.

AT&T | Software Engineering Intern Jun 2018 – Aug 2018 | Redmond, WA

- Upgraded a component of AT&T's in-house 5G network testing portal to utilize Python's asynchronous I/O framework, improving the speed of automated testing by 5%.

PARALLEL PROGRAMMING:

Concurrent AVL Trees Fall 2022

- Implemented and optimized concurrent AVL tree data structures which achieved a read/write throughput of 100M ops/sec compared to a sequential baseline of 40M ops/sec.
- Analyzed and benchmarked performance in real-world use cases on different platforms including the Pittsburgh Supercomputing Center machines.

NVIDIA CUDA Renderer Fall 2022

- Programmed a parallel renderer in CUDA that rendered random 100k element scenes 30x faster than a reference sequential CPU renderer when tested on a RTX 2080.

Particle Simulation Fall 2022

- Implemented a parallel n-body simulation that predicts the movements of many particles which interact with one another gravitationally.
- Utilized OpenMP and OpenMPI to facilitate shared memory parallelism and message passing inter-machine parallelism, respectively.

PROGRAMMING PROJECTS:

Django Web App Summer 2023

- Programmed a blog site with user authentication and flexible styling for comfortable user experience on any modern device ranging from large-screen formats to smartphones.

Fake News Detection   Summer 2023

- Created machine-learning algorithm using Python's sklearn module to detect misinformation in news articles with 93% accuracy.

Linux Shell   Spring 2021

- Wrote a Linux Shell program that could execute command-line arguments directing job control and I/O redirection.
- Shell handles running multiple background jobs, switching the status of jobs between foreground and background, and reaping terminated children processes.

Cache Simulator   Spring 2021

- Wrote a program in C to simulate the behavior of a hardware cache memory.
- Optimized a matrix transpose function to minimize cache misses.

Computer Music   Spring 2021

- Composed a musical piece using sound synthesis algorithms and digital audio processing techniques, including Markov functions, FM synthesis, and custom instrument models.

Turn-based Strategy Game   Spring 2019

- Programmed a turn-based strategy game in Python that utilized Pygame to include background aesthetics and movement animation.
- Constructed an algorithm to randomly generate maps for gameplay with realistic terrains such as mountain ranges, rivers, and forests.

Algorithms with a Purpose – 3rd Place Team   Spring 2018

- Created an algorithm to play simulations of the Risk board game against other competitor-created AI on various board states in an elimination tournament.

VOLUNTEERING & EXTRACURRICULARS:

Washington Future Problem Solving   Fall 2017 – Present

- Evaluator for the Washington state affiliate of Future Problem Solving, an international nonprofit educational program that promotes critical thinking among students in grades 4 – 12.
- Graded approximately 100 middle division (grades 7 – 9) participants on creative writing submissions over the course of four annual competitions, each year since 2017.
  - o Provided comments and suggested improvements to Washington state middle division teams.
  - o Helped Washington State middle division teams to place 1st internationally in 2019 and 3rd in 2018, 2021.

Intramural Basketball Team Captain   Spring 2021 – Spring 2022

- Coordinated with league organizer and teammates to schedule matches.

Interests & Hobbies:

- WWII History
- Fitness
- Sports
- Sci-fi fiction