Xiangwei (David) Chen

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Education

- **University of Texas at Austin** — Austin, TX
  Pursuing BS in Computer Science (Turing Scholars Program); GPA: 3.72 — *Aug. 2017 – May 2021*
  Coursework: Data Structures and Algorithms (H), Computer Architecture (H), Operating Systems (H), Quantum Information Science (H), Artificial Intelligence (H)

Experience

- **Toyota Connected** — Dallas, TX
  Software Engineering Intern — *May 2019 - Aug. 2019*
  - Developed and improved the back-end that used Elixir for an internal tool that simulated road trips
  - Worked with the Phoenix Framework to improve the front-end and UI/UX experience for users of the internal tool
  - Built a full-stack internal web app in ReactJS that implemented the Material-UI framework and allowed for safer and easier changes to development and production databases by using GraphQL
- **UT Austin Robotics Department** — Austin, TX
  Undergraduate Researcher — *Jan. 2018 - Present*
  - **Toyota Research Institute Challenge**: Competed against MIT, Stanford, and other top schools in Toyota's Robotics challenge involving LEGO Blocks and other household objects
  - **Robot Says Hello**: Autonomously had UT's Building Wide Intelligence Robots wander around and collect data on what students want robots to do
  - **Robot Operating System (ROS)**: Used a mixture of C++ and Python integrated with ROS to write code for robotics projects as a researcher

Projects

- **Web Crawler and Search Engine** — Nov. 2017 - Dec. 2017
  - Implemented a web crawler and search engine in Java
  - Developed an web index using an inverted index, storing data from each unique URL
  - Enabled query processing utilizing Djikstra's shunting yard algorithm, allowing for logical operations and precedence
- **Tetris** — Oct. 2017
  - Implemented the classic game of Tetris in Java, including rotations and wallkicks
  - Wrote a genetic algorithm that finds an optimal scoring pattern to play the game and developed a testing framework using unit tests and integration tests
- **Operating System Projects** — Aug. 2018 - Dec. 2018
  - Developed a single-cycle, multi-cycle, and pipelined processor in Verilog
  - Implemented malloc and free in a dynamically-allocated heap
  - Developed pre-emptive and cooperative multi-threading
  - Wrote code enabling virtual memory for an operating system
  - Enabled thread lambdas and multi-threading using process/thread control blocks

Skills

- **Proficient**: Java, C/C++, Git, Linux
- **Familiar**: Elixir, Phoenix, Ember, React JS, Material-UI, GraphQL, Go, Rust, Python, x86/64 Assembly, Verilog, HTML/CSS, Javascript, Clingo

Extracurricular Activities

- **Competitive Programming**: Participated in the competitive programming contests held biweekly
- **Information and Systems Security Society**: Participated in the capture the flags (CTFs) held biweekly
- **Clubs**: Association of Computing Machinery, Machine Learning and Data Science, Turing Scholars Student Association, Robocup@Home
- **Hackathons**: HackTX 2018