Joseph Tan

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Education

Stanford University Bachelor of Science in Computer Science
GPA: **3.978 / 4.00** Expected Graduation: May 2023

Relevant Skills: (*Proficient)*: Python, C, C++ (*Familiar)*: Julia, ARM/MIPS/Z80 Assembly, Lisp

Experience

- ***Research Assistant*** ***Stanford University*** *June 2021 – Present*
  - Researched improving compile times for domain specific languages and general purpose programming languages
  - Developing extension to the Tensor Algebra Compiler to improve compile times for JIT compilation of tensor algebra expressions
- ***Research Assistant*** ***UCLA*** *June 2017-August 2017*
  - Built high-resolution DXF to PDF file converter for visualization of circuit board schematics
  - Developed software to collect speedometer readings for experiments
- ***Robotics Team Mentor/Founder*** ***VEX Robotics*** *December 2017-June 2020*
  - Started 2 VEX high school robotics teams
  - Taught basic programming, engineering, and applied math/physics to high school students
  - Founded team, mentored students, handled planning/logistics, raised funding, and developed website

Projects

- ***Comper (C++)***
  - Jazz backing track generator from chord progression
  - Generates a drum track, a walking bassline, and piano chord playing with jazz voicings
  - Allows user to customize jazz style using context-free-grammar based style file
  - Implemented grammar parser, music generation logic, midi file generation, and music-specific data structures
- ***FPL Team Generator (Python)***
  - Fantasy Premier League(FPL) team selection algorithm(www.dghosef.me/fpl-writeup)
  - Scraped soccer player statistics from the FPL API
  - Developed algorithm to predict future player performances based on past performances, upcoming fixture difficulty, etc
  - Utilized linear programming solver to maximize predicted future performance levels under constraints of FPL rules to build team
- ***Berryboy (C Gameboy Emulator)***
  - Gameboy Emulator running on baremetal ARM environment
  - Executes Gameboy ROMs by emulating the Gameboy CPU, GPU, Interrupt mechanism, and I/O
  - Runs on baremetal(OS-free) ARM board
  - Developed drivers from scratch for SPI-based controller, interrupts, and HDMI output