Kyle Manke

(253) 778-0100 kmanke@usc.edu linkedin.com/in/kylemanke github.com/kylemanke Tacoma, WA

Education

University of Southern California, Viterbi School of Engineering — **Los Angeles, CA**

Master of Science, Computer Science — May 2023, GPA 4.0

Bachelor of Science, Computer Engineering/Computer Science — May 2022, GPA 3.96

Honors: Summa Cum Laude, The Order of Arete, Presidential Scholar (half-tuition merit scholarship awarded to 200 of 64,000 applicants)

Relevant Coursework: Digital Design, VLSI Design, Computer Architecture, Embedded Systems, Distributed/Parallel Computing, Operating Systems, Internetworking, Machine Learning, Artificial Intelligence, Compiler Development, Cryptography, Data Structures, Algorithms, Discrete Math, Linear Algebra

Skills

- **Languages:** C/C++, Python, Java, C#, Verilog, x86 Assembly, Lua
- **Technologies:** Apache Airflow, LLVM, PyTorch, scikit-learn, Pandas, Numpy
- **Databases:** SQL Server, Oracle, Salesforce, DBT
- **Tools:** Linux, GDB, Github, Azure DevOps, Make
- **Hardware Design:** Vivado, ModelSim, Virtuoso, Icarus Verilog, GTKWave

Work Experiences & Leadership

USC Provost IT — **Los Angeles, CA**

Software Engineer — June 2021 - May 2023

- Implemented data pipelines to interface with USC's academic databases in Python
- Optimized legacy pipelines, producing a speed-up of 96x
- Designed unit tests in Python and SQL to verify pipeline, database, and API updates
- Automated USC's academic reporting system, saving 10 employees 2+ hours a day

Dragonfruit, AI — **San Francisco, CA (Remote)**

Summer Computer Vision Intern (received return offer) — May 2020 - August 2020

- Developed and integrated an innovative object re-identification system to identify pedestrians and vehicles spanning multiple physical security videos with 80% accuracy in production
- Trained multiple TensorFlow MobileNet models with a custom semi-hard triplet loss training pipeline

Bellarmine Preparatory School — **Tacoma, WA**

Volunteer Computer Science Teacher — September 2023 - Present

- Co-teach Intro. to Programming (Python), Intro. to Python, and AP Computer Science Principles (Java)
- Assist with lesson plans, assignments, and tutoring

Projects

STUB – *C++, Python, Winsock, Sqlite, Github, Make* — **Current**

- Custom built HTTP/HTTPS multi-threaded web server in C++17
- Allows for rapid testing and development of REST APIs leveraging Python scripted endpoints

KyleOS – *C++, x86 Assembly, Qemu, GDB* — **Spring 2023**

- Designed a monolithic OS for the Raspberry Pi 3B+ using C++ and assembly
- Currently supports keyboard input, screen output, multithreading, and an EXT2 file system

Convolutional Neural Network – *Python, Pandas, Numpy* — **Fall 2022**

- Coded a simple CNN with Python and Numpy capable of early stopping, SGD, and momentum
- Trained on the Fashion MNIST dataset and reached 85% test accuracy

ESP8266 Library – *C, Python, WPA2* — **Spring 2022**

- Programmed a network library in C for the ESP8266 wireless chip supporting WPA2 standards
- Debugged the library using physical waveforms and a Python test server running on AWS

FPGA Maze Solver – *Verilog, Tcl, Vivado, ModelSim* — **Spring 2021**

- Implemented a BFS-based maze solver in Verilog and ran on an Artix FPGA board
- Tested implementations with ModelSim waveforms and custom Tcl scripts

C-Subset Compiler – *C++, LLVM, GoogleTest* — **Spring 2021**

- Developed a top-down LR(1) compiler for a subset of C with C++ and LLVM
- Utilized various optimization strategies (vectorization, SSA form, constant propagation)

Interests

- Alpine Ski Racing, Gaming, Tennis (4.5 Ranking), Table Tennis, SCUBA Diving (Advanced Open Water)