GEORGE GAO

Employment

Meta / Facebook Reality Labs
Software Engineer Intern
New York, NY
May 2022 to Aug. 2022

- Built full-stack persistence feature for Spark Scenes augmented reality app in **Swift** and **Objective-C** that lets users store virtual objects and load them back into their environments
- Developed file management system to read and write encoded objects into local **iOS** storage
- Implemented front-end user control flow with animations using **SwiftUI** and **UIKit**
- Decreased RAM usage by 40% by compressing images and utilizing local storage
- Wrote 10-page **documentation** to be used by entire Spark Scenes development team and updated old internal tooling wikis

Steris
Software Engineer Intern
Mentor, OH
June 2021 to Aug. 2021

- Implemented o**ne-time password** feature in **C** for **embedded** ARM devices to prevent users from accessing forbidden features
- Developed international language support in **C++** for in-development **embedded** ARM devices
- Wrote **Python** script to convert multi-language strings from Excel into **C++** code to help developers update code base
- Developed **Python** application to translate Excel data into **LaTeX** for team architecture documentation

Carnegie Mellon University
Principles of Imperative Computation (15-122) Teaching Assistant
Remote
June 2021 to Aug. 2021

- Led and taught recitation of 30+ students every week
- Held office hours three times per week to debug **C** code and answer conceptual, code and homework questions

Projects

Sun Sensor
Aug. 2020 to May 2021

- Designed **PCB** Sun Sensor in **Altium** that determines the Sun's angle with 6 photodiode arrays
- Implemented Serial Peripheral Interface (**SPI**) in **C** to enable communication between chips
- Developed Inter-Integrated Circuit (**I2C**) C code for cross-device communication to emulate power monitoring

Proxy Server
May 2021

- Wrote multithreaded web proxy in C that intercepts, parses, and forwards client HTTP/1.0/1.1 GET requests to web servers
- Used **POSIX** library to spawn new threads for concurrent requests and implemented **thread-safe LRU cache**

Malloc Implementation
Apr. 2021

- Implemented dynamic **memory allocator** in C that reserves and frees heap memory using **implicit** and **doubly linked lists**
- Wrote **better fit** algorithm to maximize throughput and memory utilization and tracked metadata in packed **bit** headers

Hack 112 (2nd Place Award)
Apr. 2020

- Built machine learning model that uses **Natural Language Processing** to determine genres of books given text excerpts
- Created training dataset by developing web scraper that pulls gigabytes of book excerpts from Goodreads.com
- Utilized **Text Vectorization** to feature map **data** and **Beautiful Soup** and **Selenium Python** libraries for scraping

Activities

Eta Kappa Nu Honor Society	Jan. 2021 to Current
Kappa Sigma Fraternity	Jan. 2020 to Current
180 Degrees Consulting	Jan. 2020 to Current

Contact

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Education

Carnegie Mellon University
May 2023
B.S. Computer Science
B.S. Electrical & Computer Engineering
GPA: 3.96
Dual Degree

Skills

PROGRAMMING LANGUAGES
C / C++ / x86 ASM
Python / Golang / SML
Swift / Objective-C
System Verilog
HTML / CSS / JavaScript
LaTeX
Matlab

TOOLS
NumPy / Matplotlib
Selenium / Beautiful Soup
SwiftUI / UIKit
Unix Command Line
Git / Mercurial

Relevant Course Work

(15251) Great Theoretical Ideas in CS

(15210) Parallel & Seq. Data Structures & Algorithms

(15213) Computer Systems

(15122) Imperative Computation

(15150) Functional Programming

(15451) Design & Analysis of Algorithms

(10301) Introduction to Machine Learning

(16311) Introduction to Robotics

(15330) Computer Security

(18240) Structure & Design of Digital Systems

(18344) Hardware Software Interface

(15440) Distributed Systems