Yifei SUN

November 3, 2022 +1(801)433-8213 yifei@email.com https://yifei.md/cv

Research Interests

1. Distributed system research, with emphasis on file systems, database data consistency, service discovery and related protocol design, verification, analysis and implementation.

2. Compiler and programming language design, verification, static/dynamic analysis, fuzzing and coverage testing.

3. Environment-aware automated robotic system's algorithm design and optimization with emphasis on mesh computing, computer vision and control system.

Keywords:
distributed system, compiler, static/dynamic analysis, fuzz/coverage test, parallel computing, computer vision, computer network, formal method/verification, discrete mathematics, cryptography, statistics.

Educations

The University of Utah — B. Sc. in Computer Science

2019-08 - 2023-05 Salt Lake City, UT, USA

Summary:
Thesis track student. Licensed unmanned quad-copter pilot. Multiple Dean's Lists awardee. Multiple and consecutive Academic Excellence Scholarship (merit-based) recipient.

Details:
Thesis: *Hardware System and Method to Determine ME/CFS and Long COVID Disease Severity Using Wearable Sensor and Survey Data*. Participated in HackMIT 2022, built a general purposed sentiment analysis tool for Twitter based on user provided input as proof of concept under 24 hours, the feature can be extended to multiple social media platform. Distributed backend service with Go deployed on Fly.io and frontend with Next.js, Tailwind CSS deployed on Vercel. Demo: `https://sentik.xyz`.

Keywords:
calculus, discrete mathematics, linear algebra, statistics, algorithms, computer architecture, computation models, computer networking, computer security, cryptography, distributed system, compilers, CV, data analysis, ML, NLP.

Research Experiences

The University of Utah — Research Assistant

2021-08 - present Salt Lake City, UT, USA

Summary:
Embedded system design, programming, data collection/analytics and distributed system automations in research of Long COVID and myalgic encephalomyelitis/chronic fatigue syndrome and fibromyalgia.

Details:
Under advisor Prof. Dr. Shad Roundy's and co-advisor Prof. Dr. Tucker Hermans's supervision and in co-operation with Bateman Horne Center's clinical research team, developed our custom participant-facing and researcher-facing softwares, automation workflow and adapted previous analytical programs with innovative optimization for 20+ embedded devices and 100+ custom IMUs to collect large number of study participants' motion data (TB+) to analyze the relationship of processed sensor fusion data, study participants'

daily activity and targeted medical syndromes. We are planning to use our research outcome to propose to medical regulators as a possible standardized diagnostic procedure and severity categorization for Long COVID, ME/CFS and FM. Introduction: `https://yifei.md/blog/bachelors-thesis-proposal`.

Keywords:
C++, Python, Go, MATLAB, AWS, automation, embedded system, distributed systems, sensor fusion, medical research, big data, data analytics, statistics.

Professional Experiences

DJI Innovations — Intern

2018-07 - 2018-08 — Shenzhen, Guangdong, China

Summary:
Competitive robotic system architectural design/modeling, embedded system programming, control system programming, path planning and task completion for pre-defined workflow.

Keywords:
STM32F4, C++, control system, path planning.

The University of Utah — System Administrator

2019-12 - 2020-09 — Salt Lake City, UT, USA

Summary:
Apple Mobile Device Management, managed over one thousand iMacs, MacBooks, iPads, and Apple TVs with Jamf Pro, Radmind, Apple School Manager and corresponding scripting tool for automated on-boarding, off-boarding and package distribution.

Keywords:
Python, DBMS, mobile device management, Jamf Pro, Radmind, Apple School Manager.

Languages and Skills

- **Languages**: English - Fluent, Mandarin - Native, Cantonese - Moderate, Japanese - Basic
- **Programming Languages**: Go, Python, C++, Rust, TypeScript/JavaScript, LaTeX, MATLAB.
- **Frameworks**: Gin, Numpy, Matplotlib, AFL++, Rocket, Boost, Node, TikZ, Next.js, Tailwind CSS.

Affiliations

- **IEEE** (student member) — `yifei.sun@ieee.org`
- **ACM** (student member) — `yifei.sun@acm.org`
- **EFF** (member) — `yifei@email.com`

Conferences

- 2021 - **CppCon** — Aurora, CO, USA
- 2022 - **PyCon** — Salt Lake City, UT, USA
- 2022 - **DockerCon** — Virtual Event

Publications

1. Y. Sun, S. Vernon, and S. Roundy, "Wearable Sensor Method to Determine ME/CFS & Long COVID Disease Severity", IEEE Journal of Translational Engineering in Health and Medicine, Manual Script in Preparation.
2. Y. Sun, S. Vernon, and S. Roundy, Title TBD, Conference TBD, TBD.