

# SONGHANG DENG

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## Education

University of California, Los Angeles

Master of Engineering in Data Science

September 2024 – December 2025

Los Angeles, California

University of Florida

Master of Science in Computer Science(Incomplete)

August 2023 – August 2024

Gainesville, Florida

Southern University of Science and Technology

Bachelor of Engineering in Computer Science

August 2019 – June 2023

Shenzhen, Guangdong

## Skills

**Languages:** Java, C/C++, Python, Golang, C#, MySql, Redis, Postgresql, Apache Thrift

**Technical Skills:** Data Structures and Algorithms, Operating Systems, Computer Networks, Databases, MVC Design Pattern, Domain-Driven Design, Evolutionary Computation, Deep Learning, Reinforce Learning, Git, Kafka, Unity

## Intern Experience

F5

May 2024 – August 2024

Software Engineer

Louisville, CO

- Worked as a software engineer at **Nginx**, focusing on delivering new features to **🔗 nginx-go-crossplane** ★ 46 stars stars, a Go version of **🔗 Crossplane** ★ 694 stars stars, which also introduces new capabilities.
- Improved the existing **Nginx configuration validation** API by enabling users to specify the desired Nginx version, Nginx Plus version, and/or Nginx dynamic modules for validation.
- Utilized **regex** and **Golang** to develop a command-line tool that allows external users to generate validation rules from the source code of Nginx dynamic modules.
- Implemented a **go generate** tool using **shell scripts**, **regex**, and **Golang** to fetch source codes and generate validation rules for Nginx, Nginx Plus, and known dynamic modules. Secured private links with **environment variables**.
- Integrated these APIs and tools into the NGINXaaS for Azure team workflow, merging over 20,000 lines of code into the master branch of **nginx-go-crossplane**.

Bytedance(Tiktok)

March 2023 – August 2023

Backend Developer

Shanghai

- Worked as a backend developer for Tiktok, maintaining cooperation functions between the influencers and merchants
- Used the **message queue** system to synchronize influencers' attribute changes to our local **Elastic search**, sustaining **over 2000** qps. Implemented a contingency plan by writing a **Golang** script to synchronize all influencers' (**over 9,000,000** influencers) attributes from **MySQL** to our local **Elastic search** while using another **message queue** for traffic control
- Optimized shop selection for key merchants with **over 10,000** shops by introducing pagination, using marks, and applying **multithreading**, resulting in a latency reduction of over **90%**.
- Verified attributes of over **8,000,000** orders among **Elastic search**, **Redis**, and **MySQL** by comparing three **Hive** tables partitioned at the day level, ensuring data consistency. Rectified erroneous data by querying from source data.
- Improved code quality by moving common functions from the **API layer** to the **Data Orchestration Layer**, making them easier to maintain

Tencent

June 2022 – August 2022

Game Client Engineer

Shenzhen, Guangdong

- Developed the QQ Speed mobile game client as part of the development team
- Created functionality to display participants' in-game information in a racing mode using **C# and Unity**, which can perform **over 90 fps**
- Wrote a **Python** script to fetch stable game versions from **SVN**, which streamlined whole team development processes
- Developed a visually appealing editor using **Unity Odin** for all game designers to adjust prop attributes
- Wrote a **Python** script to simplify the protocol file, reducing its size by **over 40%**

## Awards

- Meta Hacker Cup 418th place in Round 1(top2%) October 2023
- Google Kickstart Round D 2022 153rd place(top2%) July 2022
- Silver Medal, 2021 International Collegiate Programming Contest(ICPC) Asia Shenyang Regional Contest November 2021
- Silver Medal, 2021 China Collegiate Programming Contest(Harbin Site) Novemver 2021

## Projects

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### Task Scheduling | *C++*

October 2022 - July 2023

- A collaborative project with Alibaba, developed a task scheduling algorithm in C++ to optimize resource utilization guided by our theoretical model
- Implemented a **memetic algorithm** comprising of **genetic algorithm (GA)** and **variable neighborhood search** as the core components
- On our **Linux** server, I utilized the **pthread** library to accelerate the GA and employed **condition locks** for inter-thread synchronization
- Implemented over **2,500** lines of code in C++, resulting in a resource savings of over **50%** based on our theoretical model

### Covid-19 Info Platform | *SpringBoot*

December 2021

- Developed a visual platform to showcase COVID-19 information worldwide, focusing on its backend
- Implemented the **Java web-crawler** to acquire online data and created local data backups
- Video link: [video1](#), [video2](#)

### Pacman game | *c#, unity, photon*

November 2021

- Developed a dynamic Pacman game with a visually appealing UI and multiple game modes
- Utilized **Photon** for seamless online multiplayer communication, with one player serving as the host and the others as clients
- Generated randomized game maps with the **Disjoint-Set** algorithm and synchronized the random seed for online mode
- Implemented a Dark Mode feature by adjusting lights on players
- Video link: [video](#)