

Zhaoyi Song

+86 (150) 5028-5917 | 2131509@tongji.edu.cn | zhaoyi.info | troysung | Zhaoyi Song

Education

Tongji University

Shanghai, China

Master of Engineering in Software Engineering

Sept. 2021 – Mar. 2024 (Expected)

- GPA: 91.71/100.0. TOEFL: 106 (R30, L28, S21, W27).

Bachelor of Engineering in Software Engineering

Sept. 2017 – Jun. 2021

- GPA: 4.77/5.0 (92.7/100.0, Rank 10/216, **Top 5%**).
- Awarded 1st Prize Scholarship (Top 5%, 2017) and 2nd Prize Scholarship (Top 10%, 2018 & 2019).

Experience

Meituan

Shanghai, China

SDE Intern, In-Store BG | *Java, SpringBoot, Kafka, Thrift, Redis, Hive, MyBatis*

Jun. 2023 - Sept. 2023

- Trained as a software engineer at Meituan, China's premier food delivery and local service platform.
- Maintained merchant details for millions of businesses and handled transaction models.
- Refactored software interfaces to align with a new system design, ensuring data consistency.
- Employed message queues and thread pools for traffic peak shaving during high-demand scenarios.
- Crafted a management tool for batch settlement data manipulation, facilitating change tracking.

ByteDance, Ltd.

Shanghai, China

SDE Intern, Nuverse Games | *Python, C#, Golang, Unity, Jenkins, Gin, KiteX*

Nov. 2020 – Oct. 2021

- Contributed to the DevOps and quality assurance of GSDK, a comprehensive collection of dev tools to Unity/UE game developers for efficient access to essential game development capabilities.
- Developed a non-invasive automation testing tool for mobile apps to validate SDK functionalities, leading to an 80% improvement in test case writing efficiency compared to traditional UI automation methods.
- Integrated the automated testing into the CI pipeline, detecting over 40% bugs and errors during CIs.
- Developed code samples and a mobile app to demonstrate features, scenarios and best practices.

Projects

Hierarchical Multi-Agent Pathfinder

Jun. 2022 - Apr. 2023

Research Project | *Python, PyTorch, Ray, Gym*

🔗 IROS-23: HELSA

- Proposed a hierarchical reinforcement learning framework for large-scale multi-agent pathfinding, addressing the challenges of sample inefficiency resulting from sparse rewards and partial observability.
- Utilized **spatiotemporal abstraction** to decompose problems and combined **multi-agent communication** with **heuristic guidance** to facilitate decentralized policy learning.
- The proposed method outperforms existing state-of-the-art (SOTA) approaches in large-scale scenarios.

Minimal Tiktok Backend

Dec. 2022 - Feb. 2023

The 5th ByteDance Youth Camp | *Golang, go-zero, Redis, MySQL, Kubernetes, Docker*

🔗 FastTikTok

- A backend service mimicking a basic tiktok app using Golang and a microservice framework **go-zero**.
- Designed and built a simple instant messaging service using **websockets** and **RESTful APIs**, incorporating **Redis** for server-side caching and **MySQL** for data persistence.
- Built a Gitlab pipeline to deploy the program on a **Kubernetes** cluster with **docker** files and **kubect1**.

Game Programming: Command and Conquer

Mar. 2018 - Jun. 2018

Course Project | *C++, Cocos2d-x, CMake, Protobuf, Boost.Asio*

☆ 78 🔗 Our-Red-Alert

- An online RTS game mimicking Command and Conquer using C++ and the **cocos-2dx** framework.
- Designed game UI components, scenes, and tile maps, and implemented **character positioning** and **pathfinding** algorithms. Also responsible for game sound effect design.
- Other game development works: 🔗 Border Escape (Unity, Kinect), 🔗 War Force: Dungeon (Unity).

Publications

- Zhaoyi Song**, Rongqing Zhang, and Xiang Cheng. "HELSA: Hierarchical Reinforcement Learning with Spatiotemporal Abstraction for Large-Scale Multi-Agent Path Finding". In: *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'23)*. Detroit, MI, USA.

Skills

Programming Languages: Python, Java, C++, Golang, HTML/CSS, Javascript and C#

Tools: Git, PyTorch, Jenkins, Unity, SpringBoot, Kafka, MyBatis, React, Gin, MySQL and Redis