

Experience

Microsoft, Software Engineer 2

Mar 2021 - Present

- Developing embedded **cross-device** experiences and **AI-Powered** applications, details in Projects
- **Spot Award** for excellent work performance in 2022
- **PATENT: Cross-Device Data Transfer** Based On A Request-Responding Model (MS#412283-CN-NP) in 2022

OpenCUI - a startup, Software Engineer

Aug 2018 - Feb 2021

- Developed a customized **version control system** for a conversational ChatBots building platform, details in Projects
- **Data scraping**, details in Projects

Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Intern

Aug 2017 - Dec 2017

- **Visualized** the distribution of mobile traffic within commercial areas and uncovered business insights via **data mining**

Physical Lab of Northwestern Polytechnical University, Research Assistant

Feb 2017 - Jun 2017

- Created **Matlab GUI** to support friendly user interaction for the program *Digital Holographic Interferometer for Acquiring 3D Dynamic Information*

New Oriental Education & Training, Teaching Assistant

Jan 2017 - Mar 2017

- Served as an teaching assistant of English training class in high school section
- **Best Creativity Award** for my work

Education

84/100 **B.S in Software Engineering**, Northwestern Polytechnical University (NPU) | Xi'an, China

2014-18

4.14/4.3 **Computer Science and Information Engineering**, National Taiwan Normal University | Taipei, Taiwan

Feb - July 2016

4/5 **Computer Science**, University of Oulu | Oulu, Finland

Feb - Aug 2018

COURSES: Computer Network | Network & Distributed Computing | Network & Information Security | Signal & System | Algorithm | Software Engineering | Computer Architecture | Software Architecture Design | Machine Learning(Coursera)

COMPETITIONS(Mathematical Contest in Modeling): The Meritorious Winner of NPU in 2015 | The **Outstanding Winner** of NPU in 2016 | The Honorable Mention of Shaanxi Province in 2016

PUBLICATIONS: Lu Jiyao, Panos Kostakos, Mourad Oussalah and Susanna Pirttikangas. **SemanPhone: Combining Semantic and Phonetic Word Association in Verbal Learning Context** 2018 **IEEE/ACM** International Conference on Advances in Social Networks Analysis and Mining (ASONAM). doi:10.1109/ASONAM.2018.8508827 in 2018

PROFESSIONAL DEVELOPMENT: *SICP:Structure and Interpretation of Computer Programs(1985)*, this book fostered my ability to see boundaries in a system and recursively break it down to conquerable sub-systems. *Clean Architecture(2017)*, *Clean Code(2008)*, *Refactoring:Improving the Design of Existing Code(1999)*, these books solidified my ability to design, implement and maintain clean programs.

Skills

Programming	C#, Golang, Python, C/C++, Kotlin, TypeScript/JavaScript, Java, Racket, HTML+CSS, Bash, Matlab, LaTeX, SQL
Algorithm	Sorting(Merge Quick Heap), Binary Search, DFS, BFS, Dynamic Programming, Graphing(Dijkstra's Bellman-Ford)
Tools	Git, Vim, CLI tools, Visual Studio, Android Studio, IntelliJ IDEA, Docker, Postman, Swagger, Wireshark, JMeter
Technologies	RESTful, Websocket, SignalR, WebRTC, gRPC, ASP.NET, Gin, Flask, React, Vue, MySQL, PostgreSQL, MongoDB, Azure

Projects

Android Copilot: Embed Generative AI Capabilities into Android OS

2023

Microsoft

- Goal: **Integrate generative AI capabilities into the Android** operating system.
- I delved into various approaches for integrating AI capabilities, including self-designed orchestration, utilizing Microsoft Semantic Kernel, and tapping into Microsoft Bing Chat Backend. In the self-designed solution, I developed orchestration components such as prompt templates, crafted fundamental prompts for the pipeline, and conducted research on **prompt engineering** to enhance overall performance. In the **Semantic Kernel** solution, I delved into the framework's inner workings and implemented some phone skills using it. In the **Bing Chat Backend** solution, I explored how to define and trigger plugins in the backend, fine-tuned plugin prompts and configurations to better convey some of our phone skills, and devised a specialized test tool for the plugins.

Messages in Microsoft Teams

2022

Microsoft

- Goal: Enable Microsoft Teams users to **send and receive SMS messages through the App** to their Android phones.
- I developed a **push API** that allowed phones to notify the Teams app about incoming SMS messages. This involved collaborating with various teams that owned different components. My responsibilities included defining and implementing the API, integrating external services, and managing changes in requirements through negotiation. Additionally, to address delays caused by partner teams, I temporarily simulated unfinished components using **Server-Sent Events**, which helped expedite feature testing.

Bay Bridge: Cross-Device Data Transfer

2021 - 2022

Microsoft

- Goal: Provide a set of **RESTful-style APIs that can be used to fetch device data** from anywhere.
- I played a major role in developing a crucial transport service for a **microservices architecture**. As part of this, I revised a **transportation protocol** between the transport service and LinkToWindows on phones. I analyzed new requirements for the LinkToWindows side and communicated with the cross-geographical team to ensure success. I implemented some layers and features of the protocol, such as continuous chunk responses, shared **connection management**. To enhance the service's concurrency, I delved into advanced C# **asynchronous programming** techniques. Lastly, I ensured good debuggability by defining reasonable and helpful telemetry events.

Conversational User Interface for Building Conversational ChatBot

2019 - 2020

OpenCUI

- Goal: Create **a platform and set of APIs that customer developers can use to build ChatBots**, and create a ChatBot community similar to GitHub.
- As a developer for the ChatBot building platform, I created a **version control system** in the backend service to enhance collaboration among customer developers. To enable submission of pull requests to the main ChatBot version for reviewing changes, I implemented **differentiating and merging** versions. To facilitate the importation of ChatBot components from public libraries, I implemented **referencing or forking** a ChatBot component. To accommodate the creation of template ChatBots for various languages, I implemented **partitioning and consolidating** language-specific and non-language-specific aspects of ChatBot development. To make an informed decision regarding the storage strategy, which significantly impacts the aforementioned implementations, I fully explored pros and cons of **full vs delta storage**, and adopted full storage for its better alignment with system usage patterns, which proved to be superior in terms of both development ease and overall performance ultimately.

Data Scraping

2018

OpenCUI

- Goal: Build **automatic pipeline** to collect **large volume** various types of data for model training purposes.
- Initially, I determined the data sources to gather based on the data requirements, e.g. QQ Music. Next, I analyzed the **XHR requests** made to the data source and customized a **Python web crawling** script to retrieve information. Also I maintained and improved performance of the overall scraping framework continuously.