Songlin Jiang

✉ hollowman@opensuse.org • 🌐 hollowman6.github.io • in songlin-jiang
🐦 HollowM186 • ⭘ HollowMan6 • Last updated on July 12, 2024

I find immense joy in pushing my boundaries by tackling complex issues that have the potential to positively impact the public. My fervor converges with enhancing **computer systems**, **networks**, **databases**, and their corresponding **security** aspects, which allows me to have impacts on computing for both the environment (**greener while efficient**) and people (**faster while reliable**). Additionally, I am a passionate **free software advocate**. During my leisure time, I maintain several open-source projects and contribute to many others.

Education

Ph.D. in Machine Learning Systems & Databases, *Aalto University*   08/2024 – 07/2028
- Improve Reinforcement Learning & Large Language Models (LLMs) efficiency on HPC clusters & IoT devices
- Supervisor: Prof. Bo Zhao & Prof. Mario Di Francesco

M.Sc. in SECCLO Erasmus Mundus, *Aalto University* (5/5)   08/2022 – 07/2024
- Specialization: **Security and Cloud Computing**
- Thesis: Real-Time GPU Usage Alert Service for Pre-Exascale HPC Clusters
- Supervisor: Prof. Bo Zhao

M.Sc. in SECCLO Erasmus Mundus, *Technical Uni. of Denmark (DTU)* (11.36/12)   08/2023 – 06/2024
- Specialization: **Reliable Distributed Systems**
- Thesis: Real-Time GPU Usage Alert Service for Pre-Exascale HPC Clusters
- Supervisor: Prof. Bernd Dammann

No Degree (Exchange Abroad), *University of Leeds* (Pass, no grade due to COVID-19) 01/2020 – 06/2020
- Specialization: **Computer Science**

B.Eng. in Computer Science & Technology (Honors), *Lanzhou University* (91/100) 09/2018 – 06/2022
- Thesis: *A Short-Term Wind Speed Multistep-Ahead Hybrid Prediction Model based on ICEEMDAN and Prophet-GRU-NN*
- Supervisor: Prof. Chao Ren

Experience

OSPP Summer, *OceanBase* (add support for the IVFPQ vector index algorithm)   06/2024 – 10/2024

Mentor for Google Summer of Code 2024, *MIT CSAIL & OpenSUSE* (simultaneously) 05/2024 – 09/2024
- Mentor Chang Min Bark for Updating the Multi-select Plugin in Blockly and Cross-testing Other Plugins
- Mentor Jiamin Wang for Refactor Customize IBus with Modern Interface and Extensibility

Junior Application Specialist, *CSC - IT Center for Science* (master's thesis)   01/2024 – 07/2024
- Implement the **real-time GPU usage alert service** for HPC clusters
- Deploy **Large Language Models (LLM) inference** service in HPC environment with vLLM

Founder, *Hollow Software* (company registered and established in Finland, business ID: 3369577-7) 06/2024 – Present

Developer Relations Engineer, *Enclaive* (confidential computing, with Prof. Sebastian Gajek) 06/2023 – 05/2024
- Create technical **documentation**, tutorials and content
- Manage channel to **interact** with the community and grow the customer base

Coding Experience 2023 I & II, *Igalia* (Wolvic, ex. Mozilla Firefox Reality)   06/2023 – 12/2023
○ Develop **VR Browser**, refactor **Android** deprecated methods
○ Address user issues. Implement UI, graphics, browser, and **openXR** related features
○ Contribute to the majority of the features available from v1.4.2 – 1.6

HPC Developer Internship, *CSC - IT Center for Science*   05/2023 – 08/2023
○ Develop the **GPU monitoring service** for HPC clusters (NVIDIA and AMD GPUs, including LUMI)
○ Develop the Documentation GPT chatbot service using **llamaIndex**, **LangChain** and **Redis**/**Qdrant**
○ Make improvements to the HPC web operating interface project *Open OnDemand* using **Ruby on Rails**
○ LUMI ranked **3rd** around the world and **1st in Europe** at HPC supercomputer TOP500 list by 06/2023

CNCF LFX Mentorship, *Kubescape* (Kubernetes security platform)   03/2023 – 05/2023
○ Add packaging support for various **package managers** in **Linux**, **macOS**, and **Windows**
○ Improve **release CI** by adding **ARM64** binaries building and testing support (**QEMU** and **cross compiling**)
○ Add support for Kubescape auto version bumping in other Kubescape-related repositories
○ Enable Kubescape **GitHub action** to support **code review** based on generated **SARIF report**
○ A blog post by **Cloud Native Computing Foundation** (**CNCF**) that introduces my work

Rhino-Bird Open-Source Training Program, *Tencent* (Kona JDK)   07/2022 – 09/2022
○ Investigate keypairs generation for **SM2** with **JDK**, compare **performance** and **security** of algorithms

Google Summer of Code, *MIT CSAIL & Google* (Blockly, web-based visual program editor) 05/2022 – 09/2022
○ Create a plugin to allow selecting, dragging and manipulating **multiple blocks at once** for Google Blockly
○ Resolve the issue that had troubled the **Google Engineers** for **a decade** (since the Blockly project started)
○ @mit-app-inventor/blockly-plugin-workspace-multiselect now has an average of **390+** downloads per week

Summer of Bitcoin, *Cryptoanarchy Debian* (Bitcoin related Debian packages)   05/2022 – 08/2022
○ Add Continuous Integration (CI) by investigating **systemd** support inside Docker with GitHub Actions
○ The chance to get into this internship in 2022: **83/20317**

RL Open Source Fest, *Microsoft Research NYC* (Vowpal Wabbit, ML library)   05/2022 – 08/2022
○ Add native CSV parser support for the Vowpal Wabbit project in C++, **100%** Test & Code Coverage
○ Manage to make **10x performance improvement** and is comparable to speed of original VW text format

Open Source Internship, *Institute of Software, CAS* (openEuler, Linux distribution)   01/2022 – 07/2022
○ **First** to obtain 150 intern credits. Help solve 6 issues, related technologies include **D-Bus**, **Glib**, building Cloud
  Native **Container** images, **Rust** programming, **Chrome DevTools Protocol**, test case, **RPM** packaging
○ One of the achievements mdbook-pdf now has an average of **500+** downloads per week

Google Summer of Code, *openSUSE* (IBus, input method framework)   06/2021 – 08/2021
○ Add customizing themes feature for IBus in desktop environments, improve IBus settings support in GNOME
○ A blog post at **openSUSE News** that introduces my work
○ **GNOME extension** Customize IBus now has an average of **300+** downloads per week

OSPP Summer, *openEuler* (Developed an ISO writer using QT and C++)   07/2021 – 09/2021

OSPP Summer, *Emacs Application Framework* (EAF, work with Yong Wang)   07/2020 – 09/2020
○ Add new features and address all kinds of issues using **Emacs Lisp**, **Python**, **JavaScript**, **SQLite**
○ A blog post (in Chinese) about my work posted by Yong Wang (ManateeLazyCat)

Summer of Code, *Alibaba* (Arthas, Alibaba's most starred project on GitHub, Java diagnostic tool) 07/2020 – 08/2020
- Create Chinese and English interactive online tutorials for Arthas using **Katacoda** and **Vue.js**
- **Coding part highlight**: Support directly searching Class Loader by name instead of Hash Code in Java
- A Wechat post (in Chinese) about my work posted by hengyunabc

Certificates & Honors & Awards

SECCLO **Erasmus Mundus** Scholarship	2022 – 2024
(26/767) Full-ride scholarship, includes full tuition fee waiver, covers all living costs and travel expenses	
Delegate of OpenSUSE Project for **Google** Summer of Code 2024 Mentor Summit	2024
Certified Kubernetes Security Specialist (CKS), **CNCF**	2024
Travel Funding for **Google** Blockly Summit 2024	2024
Recommended Talk for **Google** Blockly Summit 2023	2024
Black Hat Europe 2023 Student Scholarship	2023
Aalto University School of Science Dean's Incentive Scholarship	2023
Cloud Captains in **Linux Foundation** Training (LiFT) Scholarship (China)	2022
Huawei Cloud Certified Developer Associate in Internet of Things (HCCDA - IoT)	2022
Certified Kubernetes Administrator (CKA), **CNCF**	2022
Recognized **Tencent** Open Source Contributor	2022
Only 30+ were issued globally by the end of 2022	
Intern of Excellence Award at **Tencent**	2022
Only 2/4000+ received all the 3 kinds of intern awards	
Intern of Excellence & Star of Open Source Award in **openEuler** Open Source Internship	2022
Only 3/150+ interns received both awards	
China Ministry of Education & Huawei "Intelligent Base" Future Star Scholarship	2021
Software Design Engineer, China **Qualification of Computer and Software Professional**	2021
Academic Aces in **Linux Foundation** Training (LiFT) Scholarship (China)	2020
CATTI Level 3 (English & Chinese) Translator	2020
Best Paper Award in **Lanzhou University** Summer Social Practice Report	2020
Paper: Research on the Functionality and Optimization of Urban Communities in China During COVID-19 in 2020	
Award in **openEuler** University Developer Competition	2020
(24/547 Teams) I participated alone, ranked 1st in final defense	
China Scholarship Council Outstanding Undergraduate International Exchange Scholarship	2019
(Only 1) Full covering of visa fees, traveling fees, and living costs, plus the host university exchange program tuition fee waiver agreement	
Google InnoCamp Hangzhou BoostMakers – TensorFlow Boost	2019
Only 40+/2000+ got this certificate	
Excellent Project Award in **Lanzhou University** Innovation and Entrepreneurship Plan	2019
Only 122/1268 got this award	

Nine **Lanzhou University** undergraduate scholarships   2018 – 2022

3 × scholarship for academic excellence, 5 × scholarship for innovation and entrepreneurship projects, 2020 scholarship for IELTS test fee

Open Source Repositories

1.5k+ GitHub followers. 94.1k+ GitHub stars across all of the following selected repositories:

1. run-llama/llama_index	★33.5k	*RAG Framework*	2023
2. kubescape/kubescape	★9.9k	*Kubernetes Security Platform*	2023
3. Igalia/wolvic	★764	*Immersive VR Browser*	2023
4. VowpalWabbit/vowpal_wabbit	★8.4k	*Machine Learning System*	2022
5. rust-headless-chrome/rust-headless-chrome	★2.2k	*Chrome DevTools Protocol in Rust*	2022
6. ThibaultJanBeyer/DragSelect	★674	*Multi-Select UI Library*	2022
7. debian-cryptoanarchy/cryptoanarchy-deb-repo-builder	★142	*Bitcoin Packages for Debian*	2022
8. HollowMan6/mdbook-pdf	★146	*MdBook backend for PDF Generation*	2022
9. mit-cml/workspace-multiselect	★9	*Blockly Multi-Select Plugin*	2022
10. openSUSE/Customize-IBus	★60	*Full Customization of IBus UI*	2021
11. HollowMan6/Wechat-Timed-Message	★23	*GitHub action for WeChat Message*	2021
12. openSUSE/IBus-Theme-Hub	★20	*IBus Themes CSS Hub*	2021
13. openSUSE/IBus-Theme-Tools	★16	*IBus Theme Generator*	2021
14. alibaba/arthas	★35.1k	*Java Diagnostic Tool*	2020
15. emacs-eaf/emacs-application-framework	★3k	*Emacs Application Framework*	2020
16. HollowMan6/TinyML-ESP32	★138	*TinyML Programs for ESP32*	2020
17. HollowMan6/SRMD-Pytorch	★23	*Super Resolution Model*	2020

Invited Talks

Content, Link to the talk, and Date:

1. *Virtual Network Systems among Containers*, Aalto University Secure Systems Demo Day	06/2023
2. *Multi-Select Plugin*, Google Blockly Summit	06/2023
3. *Native CSV Parser*, Microsoft Research NYC Seminar (RLOSFest)	08/2022
4. *Summary of my Open Source Internship*, openEuler Excellent Intern Seminar	08/2022
5. *Update Notification Program in Python*, openEuler University Developer Competition	05/2021
6. *Summary of my Contribution to Arthas*, Alibaba Summer of Code Presentation	08/2020

Professional Activities

openSUSE Member   2021 – Present

Continued and substantial contributions to the openSUSE project. With voting rights and the ability to run for the openSUSE board

Reviewing...
o ACM SIGMOD 2023 Availability & Reproducibility

Research Projects

o **Virtual Network Systems among Containers**   2023
   Prof. Tuomas Aura, *Aalto University*

- **Hybrid Model for Stock Price Prediction Based on Time Series and Neural Network** 2021
  Dr. Weiwei Liu, *Lanzhou University*
- **Renaissance – Use AI to Repair Old Photos** 2020
  Prof. Chao Ren, *Lanzhou University*
- **Skin Cancer detection Method Based on CNN** 2020
  Dr. Xin Lv, *Lanzhou University*
- **Renaissance – AI + Dunhuang Art** 2019
  Prof. Qingguo Zhou, *Lanzhou University*
- **Self-balancing Bike** 2019
  Prof. Hongxin Li, *Lanzhou University*

Software Copyrights

- Hollow Software for Smartly Memorizing Words — CN 2020SR0839716
- Hollow Software System for Sport Center Management — CN 2020SR0839709
- Hollow Software for Jack Compiler — CN 2020SR0839702
- Hollow Software for Picture & Video Information Hiding En-Decryption — CN 2020SR0079950
- Face Recognition Access Control System — CN 2019SR1388115

Publications [Google Scholar, 2 citations with h-index of 1]

2019

1. *Voting System Based on Wechat Pay*
   Songlin Jiang
   Computer Engineering & Software 2019

Skills

Programming C++, Go, Rust, Python, C, Java, Kotlin, JavaScript, SQL, HTML, Bash, PHP, Ruby ...
Frameworks Kubernetes, TensorFlow, Docker, PyTorch, Pandas, GitHub Actions, Flutter, React, QT ...
DataBases PostgreSQL, MongoDB, Redis, InfluxDB, TimescaleDB, HBase, Hive, Hadoop, Spark ...

Courses

Some top-quality courses I've taken:

- **Program Analysis**, *DTU* — Fall 2023
- **Programming Parallel Computers**, *Aalto University* — Spring 2023
- **Platform Security**, *Aalto University* — Spring 2023
- **Cloud Software and Systems**, *Aalto University* — Fall 2022
- **Multimedia Services in Internet**, *Aalto University* — Fall 2022
- **Designing and Building Scalable Web Applications**, *Aalto University* — Fall 2022
- **Network Security**, *Aalto University* — Fall 2022
- **Formal Languages and Finite Automata**, *University of Leeds* — Spring 2020