

Songlin Jiang

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🐦 [HollowM186](https://twitter.com/HollowM186) • [HollowMan6](https://github.com/HollowMan6) • Last updated on December 4, 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 developer**. During my leisure time, I maintain several open-source projects and contribute to many others.

Education

Ph.D. in Computer Science and Technology, *Aalto University* 08/2024 – 07/2028

- Specialization: **Machine Learning Systems & Databases**
- Funding: [Efficient Deep Neural Network Computation with Resource-Constrained Devices \(DNN ReCoDe\)](#)
- Supervisor: [Prof. Mario Di Francesco](#), Thesis Advisor: [Prof. Bo Zhao](#)

M.Sc. Eng. in SECCLO Erasmus Mundus, *Tech. 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](#)

M.Sc. (Tech.) (Honor) 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](#)

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

- Host: **School of Computer Science**

B.Eng. in Computer Science & Technology (Honor), *Lanzhou University* (91/100) 09/2018 – 06/2022

- Specialization: **Specialized Class for Fundamentals and Theories of Computer Science**
- 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

- Enable more vector indexing capabilities for OceanBase – a multi-cloud **distributed SQL database**
- OceanBase is developed by Ant Group (Alibaba), supports the peak traffic in Double 11 Shopping Festivals

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, Enclave (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 **250+** 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

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|---|-------------------|
| OSPP Summer , <i>openEuler</i> (Developed an ISO writer using QT and C++) | 07/2021 – 09/2021 |
| OSPP Summer , <i>Emacs Application Framework</i> (EAF, work with Yong Wang) | 07/2020 – 09/2020 |
| <ul style="list-style-type: none"> ○ 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 , <i>Alibaba</i> (Arthas , Alibaba's most starred project on GitHub, Java diagnostic tool) | 07/2020 – 08/2020 |
| <ul style="list-style-type: none"> ○ 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

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|---|-------------|
| Aalto University School of Science Dean's Incentive Scholarship | 2023 – 2024 |
| 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 |
| Joint funded by Google and openSUSE Travel Support Program | |
| Travel Fund for The Linux Foundation Open Source Summit Europe 2024 | 2024 |
| To speak at the LFX Mentorship Showcase | |
| 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 |
| 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 | |

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| Award in openEuler University Developer Competition (24/547 Teams) I participated alone, ranked 1st in final defense | 2020 |
| China Scholarship Council Outstanding Undergraduate International Exchange Scholarship (Only 1) Full covering of visa fees, traveling fees, and living costs, plus the host university exchange program tuition fee waiver agreement | 2019 |
| Google InnoCamp Hangzhou BoostMakers – TensorFlow Boost Only 40+/2000+ got this certificate | 2019 |
| Excellent Project Award in Lanzhou University Innovation and Entrepreneurship Plan Only 122/1268 got this award | 2019 |
| Nine Lanzhou University undergraduate scholarships 3 x scholarship for academic excellence, 5 x scholarship for innovation and entrepreneurship projects, 2020 scholarship for IELTS test fee | 2018 – 2022 |

Open Source Repositories

1.5k+ GitHub followers. 102k+ GitHub stars across all of the following selected repositories:

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|---|---|------|
| 1. OpenRLHF/OpenRLHF Rank #10 among all contributors with 5 commits, 139 lines of additions and 46 lines of deletions | ★2.8k <i>RLHF Framework</i> | 2024 |
| 2. run-llama/llama_index Rank #74 among all contributors with 6 commits, 427 lines of additions and 24 lines of deletions | ★37.1k <i>RAG Framework</i> | 2023 |
| 3. kubescape/kubescape Rank #8 among all contributors with 40 commits, 745 lines of additions and 555 lines of deletions | ★10.3k <i>Kubernetes Security Platform</i> | 2023 |
| 4. Igalia/wolvic Rank #7 among all contributors with 144 commits, 9931 lines of additions and 4186 lines of deletions | ★830 <i>Immersive VR Browser</i> | 2023 |
| 5. VowpalWabbit/vowpal_wabbit Rank #59 among all contributors with 8 commits, 0 lines of additions and 0 lines of deletions | ★8.5k <i>Machine Learning System</i> | 2022 |
| 6. rust-headless-chrome/rust-headless-chrome Rank #13 among all contributors with 6 commits, 81 lines of additions and 11 lines of deletions | ★2.4k <i>Chrome DevTools Protocol in Rust</i> | 2022 |
| 7. ThibaultJanBeyer/DragSelect Rank #7 among all contributors with 3 commits, 213 lines of additions and 23 lines of deletions | ★720 <i>Multi-Select UI Library</i> | 2022 |
| 8. debian-cryptoanarchy/cryptoanarchy-deb-repo-builder Rank #4 among all contributors with 7 commits, 245 lines of additions and 22 lines of deletions | ★145 <i>Bitcoin Packages for Debian</i> | 2022 |
| 9. HollowMan6/mdbook-pdf Rank #1 among all contributors with 46 commits, 3298 lines of additions and 602 lines of deletions | ★155 <i>MdBook backend for PDF Generation</i> | 2022 |
| 10. mit-cml/workspace-multiselect Rank #1 among all contributors with 45 commits, 16981 lines of additions and 23637 lines of deletions | ★11 <i>Blockly Multi-Select Plugin</i> | 2022 |
| 11. openSUSE/Customize-IBus Rank #1 among all contributors with 366 commits, 51709 lines of additions and 38654 lines of deletions | ★68 <i>Full Customization of IBus UI</i> | 2021 |
| 12. HollowMan6/Wechat-Timed-Message Rank #1 among all contributors with 99 commits, 4139 lines of additions and 1718 lines of deletions | ★23 <i>GitHub action for WeChat Message</i> | 2021 |
| 13. openSUSE/IBus-Theme-Hub Rank #1 among all contributors with 21 commits, 3190 lines of additions and 442 lines of deletions | ★25 <i>IBus Themes CSS Hub</i> | 2021 |
| 14. openSUSE/IBus-Theme-Tools Rank #1 among all contributors with 104 commits, 8558 lines of additions and 4654 lines of deletions | ★18 <i>IBus Theme Generator</i> | 2021 |
| 15. alibaba/arthas Rank #2 among all contributors with 80 commits, 25191 lines of additions and 1543 lines of deletions | ★35.7k <i>Java Diagnostic Tool</i> | 2020 |
| 16. emacs-eaf/emacs-application-framework Rank #5 among all contributors with 49 commits, 3482 lines of additions and 1033 lines of deletions | ★3.1k <i>Emacs Application Framework</i> | 2020 |
| 17. HollowMan6/TinyML-ESP32 Rank #1 among all contributors with 11 commits, 78393 lines of additions and 19530 lines of deletions | ★152 <i>TinyML Programs for ESP32</i> | 2020 |
| 18. HollowMan6/SRMD-Pytorch Rank #1 among all contributors with 23 commits, 21397 lines of additions and 1399 lines of deletions | ★23 <i>Super Resolution Model</i> | 2020 |

Invited Talks

Content, Link to the talk, and Date:

1. *Fully Automated Release and Code Review with CI/CD*, **Open Source Summit** Europe 09/2024
2. *Virtual Network Systems among Containers*, **Aalto** University Secure Systems Demo Day 06/2023
3. *Multi-Select Plugin*, **Google** Blockly Summit 06/2023
4. *Native CSV Parser*, **Microsoft Research** NYC Seminar (RLOSfest) 08/2022
5. *Summary of my Open Source Internship*, **openEuler** Excellent Intern Seminar 08/2022
6. *Update Notification Program in Python*, **openEuler** University Developer Competition 05/2021
7. *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.....

- International Conference on Learning Representations (**ICLR**) 2025
- International Joint Conference on Neural Networks (**IJCNN**) 2025
- Medical Imaging with Deep Learning (**MIDL**) 2025
- Deployable AI Workshop (DAI) at AAAI Conference on Artificial Intelligence (**AAAI**) 2025
- Compression Workshop at Conference on Neural Information Processing Systems (**NeurIPS**) 2024
- Safe Generative AI Workshop at **NeurIPS** 2024
- **NeurIPS** 2024 Workshop on Bayesian Decision-making and Uncertainty (BDU)
- Latinx in AI Workshop at **NeurIPS** 2024
- ACM Special Interest Group on Management of Data (**SIGMOD**) 2023 Availability & Reproducibility

Research Projects

- **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
- Face Recognition Access Control System

CN 2020SR0079950
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