

# Songlin Jiang

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🐦 [HollowM186](#) • [HollowMan6](#) • Last updated on August 7, 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**, *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 **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

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

## Open Source Repositories

1.5k+ GitHub followers. 95k+ GitHub stars across all of the following selected repositories:

1.	<a href="#">run-llama/llama_index</a>	★34.2k	<i>RAG Framework</i>	2023
2.	<a href="#">kubescape/kubescape</a>	★10k	<i>Kubernetes Security Platform</i>	2023
	Rank #9 among all contributors with 40 commits, 745 lines of additions and 555 lines of deletions			
3.	<a href="#">Igalia/wolvic</a>	★772	<i>Immersive VR Browser</i>	2023
	Rank #7 among all contributors with 144 commits, 9931 lines of additions and 4186 lines of deletions			
4.	<a href="#">VowpalWabbit/vowpal_wabbit</a>	★8.4k	<i>Machine Learning System</i>	2022
	Rank #60 among all contributors with 8 commits, 0 lines of additions and 0 lines of deletions			
5.	<a href="#">rust-headless-chrome/rust-headless-chrome</a>	★2.2k	<i>Chrome DevTools Protocol in Rust</i>	2022
	Rank #13 among all contributors with 6 commits, 81 lines of additions and 11 lines of deletions			
6.	<a href="#">ThibaultJanBeyer/DragSelect</a>	★689	<i>Multi-Select UI Library</i>	2022
	Rank #7 among all contributors with 3 commits, 213 lines of additions and 23 lines of deletions			
7.	<a href="#">debian-cryptanarchy/cryptanarchy-deb-repo-builder</a>	★143	<i>Bitcoin Packages for Debian</i>	2022
	Rank #4 among all contributors with 7 commits, 245 lines of additions and 22 lines of deletions			
8.	<a href="#">HollowMan6/mdbook-pdf</a>	★150	<i>MdBook backend for PDF Generation</i>	2022
	Rank #1 among all contributors with 46 commits, 3298 lines of additions and 602 lines of deletions			
9.	<a href="#">mit-cml/workspace-multiselect</a>	★9	<i>Blockly Multi-Select Plugin</i>	2022
	Rank #1 among all contributors with 43 commits, 13683 lines of additions and 22311 lines of deletions			
10.	<a href="#">openSUSE/Customize-IBus</a>	★62	<i>Full Customization of IBus UI</i>	2021
	Rank #1 among all contributors with 361 commits, 44016 lines of additions and 31419 lines of deletions			
11.	<a href="#">HollowMan6/Wechat-Timed-Message</a>	★23	<i>GitHub action for WeChat Message</i>	2021
	Rank #1 among all contributors with 99 commits, 4139 lines of additions and 1718 lines of deletions			
12.	<a href="#">openSUSE/IBus-Theme-Hub</a>	★21	<i>IBus Themes CSS Hub</i>	2021
	Rank #1 among all contributors with 21 commits, 3190 lines of additions and 442 lines of deletions			
13.	<a href="#">openSUSE/IBus-Theme-Tools</a>	★16	<i>IBus Theme Generator</i>	2021
	Rank #1 among all contributors with 104 commits, 8558 lines of additions and 4654 lines of deletions			
14.	<a href="#">alibaba/arthas</a>	★35.2k	<i>Java Diagnostic Tool</i>	2020
	Rank #2 among all contributors with 80 commits, 25191 lines of additions and 1543 lines of deletions			
15.	<a href="#">emacs-eaf/emacs-application-framework</a>	★3k	<i>Emacs Application Framework</i>	2020
	Rank #5 among all contributors with 49 commits, 3482 lines of additions and 1033 lines of deletions			
16.	<a href="#">HollowMan6/TinyML-ESP32</a>	★140	<i>TinyML Programs for ESP32</i>	2020
	Rank #1 among all contributors with 11 commits, 78393 lines of additions and 19530 lines of deletions			
17.	<a href="#">HollowMan6/SRMD-Pytorch</a>	★23	<i>Super Resolution Model</i>	2020
	Rank #1 among all contributors with 23 commits, 21397 lines of additions and 1399 lines of deletions			

## Invited Talks

Content, Link to the talk, and Date:

1.	<i>To be announced, Open Source Summit Europe</i>	09/2024
2.	<i>Virtual Network Systems among Containers, Aalto University Secure Systems Demo Day</i>	06/2023
3.	<i>Multi-Select Plugin, Google Blockly Summit</i>	06/2023

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|--|---------|
| 4. <i>Native CSV Parser</i> , Microsoft Research NYC Seminar (RLOSfest)                      | 08/2022 |
| 5. <i>Summary of my Open Source Internship</i> , openEuler Excellent Intern Seminar          | 08/2022 |
| 6. <i>Update Notification Program in Python</i> , openEuler University Developer Competition | 05/2021 |
| 7. <i>Summary of my Contribution to Arthas</i> , Alibaba Summer of Code Presentation         | 08/2020 |

## Professional Activities

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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.....

- ACM SIGMOD 2023 Availability & Reproducibility

## Research Projects

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|--|------|
| ○ <b>Virtual Network Systems among Containers</b>  | 2023 |
| Prof. Tuomas Aura, <i>Aalto University</i>   |      |
| ○ <b>Hybrid Model for Stock Price Prediction Based on Time Series and Neural Network</b> | 2021 |
| Dr. Weiwei Liu, <i>Lanzhou University</i>  |      |
| ○ <b>Renaissance – Use AI to Repair Old Photos</b>                                       | 2020 |
| Prof. Chao Ren, <i>Lanzhou University</i>  |      |
| ○ <b>Skin Cancer detection Method Based on CNN</b>                                       | 2020 |
| Dr. Xin Lv, <i>Lanzhou University</i>  |      |
| ○ <b>Renaissance – AI + Dunhuang Art</b>   | 2019 |
| Prof. Qingguo Zhou, <i>Lanzhou University</i>  |      |
| ○ <b>Self-balancing Bike</b>   | 2019 |
| Prof. Hongxin Li, <i>Lanzhou University</i>  |      |

## Software Copyrights

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|--|------------------|
| ○ 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]

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2019.....

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

## Skills

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**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 ...