

Songlin Jiang

✉ hollowman@opensuse.org • 🌐 hollowman6.github.io • ⚡ songlin-jiang
🐦 HollowM186 • 💬 HollowMan6 • Last updated on November 22, 2025

As a **doctoral researcher**, my focus is on improving Reinforcement Learning & Large Language Models (LLMs) training and inference latency on High-Performance Computing (HPC) clusters & edge devices. Besides, 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**). I am also a passionate **free software developer**, 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**
- Teaching Assistant: 2025 - now, Cloud Software and Systems D. **CS-E4190**
- Teaching Assistant: 2024, Scalable Systems and Data Management D. **CS-E4780**

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

Reinforcement Learning Infrastructure Engineer, Fellow (world's first agentic browser) 08/2025 – 11/2025

- Building infrastructures for Agentic RL training of Vision Language Models (VLMs) on top of **verl**
- **Verl** is **Volcano Engine & ByteDance Seed**'s Reinforcement Learning framework for LLMs

Reinforcement Learning Algorithm Engineer, xDAN AI (Agentic RL training with verl) 04/2025 – 08/2025

- Developing solutions for Agentic LLMs training using reinforcement learning
- Targeting areas include **coding**, **math**, **finance**, **deep researcher**, and **RAG enhancement**

AI Prompt Engineer, Outlier (create RLHF datasets for code generation)	01/2025
○ Crafting and answering questions related to computer science in order to help train AI models	
○ Evaluating and ranking code generated by AI models	
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)	06/2023 – Present
○ Freelance for full-stack computer programming tasks	
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 – v1.6	
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
- 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](#)
-
- ## Open Source Repositories
- 1.6k GitHub followers. 131.7k GitHub stars across all of the following selected repositories:
1. **NVIDIA-NeMo/Megatron-Bridge** ★208 *HuggingFace j-i Megatron* 2025
Rank #17 among all contributors with 5 commits, 328 lines of additions and 41 lines of deletions
 2. **deepspeedai/DeepSpeed** ★40.8k *Training Framework* 2025
Rank #41 among all contributors with 12 commits, 119 lines of additions and 76 lines of deletions
 3. **zhuzilin/ring-flash-attention** ★919 *Ring Attention* 2025
Rank #3 among all contributors with 4 commits, 124 lines of additions and 23 lines of deletions
 4. **volcengine/ver** ★16.3k *RLHF Framework* 2025
Rank #8 among all contributors with 50 commits, 1853 lines of additions and 1532 lines of deletions
 5. **OpenRLHF/OpenRLHF** ★8.4k *RLHF Framework* 2024
Rank #5 among all contributors with 33 commits, 531 lines of additions and 199 lines of deletions
 6. **kubescape/kubescape** ★11.1k *Kubernetes Security Platform* 2023
Rank #9 among all contributors with 40 commits, 745 lines of additions and 555 lines of deletions
 7. **Igalia/wolvic** ★916 *Immersive VR Browser* 2023
 8. **VowpalWabbit/vowpal_wabbit** ★8.6k *Machine Learning System* 2022
Rank #59 among all contributors with 8 commits, 0 lines of additions and 0 lines of deletions
 9. **rust-headless-chrome/rust-headless-chrome** ★2.8k *Chrome DevTools Protocol in Rust* 2022
Rank #12 among all contributors with 7 commits, 87 lines of additions and 12 lines of deletions
 10. **ThibaultJanBeyer/DragSelect** ★765 *Multi-Select UI Library* 2022
Rank #7 among all contributors with 3 commits, 213 lines of additions and 23 lines of deletions

11. debian-cryptoanarchy/cryptoanarchy-deb-repo-builder	★143	<i>Bitcoin Packages for Debian</i>	2022
		Rank #3 among all contributors with 7 commits, 245 lines of additions and 22 lines of deletions	
12. HollowMan6/mdbook-pdf	★198	<i>MdBook backend for PDF Generation</i>	2022
		Rank #1 among all contributors with 62 commits, 3515 lines of additions and 759 lines of deletions	
13. mit-cml/workspace-multiselect	★14	<i>Blockly Multi-Select Plugin</i>	2022
		Rank #1 among all contributors with 50 commits, 18358 lines of additions and 25270 lines of deletions	
14. openSUSE/Customize-IBus	★79	<i>Full Customization of IBus UI</i>	2021
		Rank #1 among all contributors with 371 commits, 53904 lines of additions and 40932 lines of deletions	
15. HollowMan6/Wechat-Timed-Message	★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	
16. openSUSE/IBus-Theme-Hub	★32	<i>IBus Themes CSS Hub</i>	2021
		Rank #1 among all contributors with 21 commits, 3190 lines of additions and 442 lines of deletions	
17. openSUSE/IBus-Theme-Tools	★22	<i>IBus Theme Generator</i>	2021
		Rank #1 among all contributors with 104 commits, 8558 lines of additions and 4654 lines of deletions	
18. alibaba/artha	★36.8k	<i>Java Diagnostic Tool</i>	2020
		Rank #2 among all contributors with 80 commits, 25191 lines of additions and 1543 lines of deletions	
19. emacs-eaf/emacs-application-framework	★3.4k	<i>Emacs Application Framework</i>	2020
		Rank #5 among all contributors with 49 commits, 3482 lines of additions and 1033 lines of deletions	
20. HollowMan6/TinyML-ESP32	★181	<i>TinyML Programs for ESP32</i>	2020
		Rank #1 among all contributors with 11 commits, 78393 lines of additions and 19530 lines of deletions	
21. HollowMan6/SRMD-Pytorch	★26	<i>Super Resolution Model</i>	2020
		Rank #1 among all contributors with 23 commits, 21397 lines of additions and 1399 lines of deletions	

Publications [Google Scholar, 239 citations with h-index of 1]

2025.....

1. *OpenRLHF: A Ray-based Easy-to-use, Scalable and High-performance RLHF Framework*
Jian Hu, Xibin Wu, Wei Shen, Jason Klein Liu, Weixun Wang, **Songlin Jiang**, Haoran Wang, Hao Chen, Bin Chen, Wenkai Fang, Xianyu, Yu Cao, Haotian Xu, and Yiming Liu
Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP): System Demonstrations 2025
2. *QUASAR: Quantum Assembly Code Generation Using Tool-Augmented LLMs via Agentic RL*
Cong Yu, Valter Uotila, Shilong Deng, Qingyuan Wu, Tuo Shi, **Songlin Jiang**, Lei You, and Bo Zhao
preprint arXiv:2510.00967 2025

2019.....

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

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

Certificates & Honors & Awards

Travel Funding for Google Blockly Summit	2024 – 2025
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
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	
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 x scholarship for academic excellence, 5 x scholarship for innovation and entrepreneurship projects, 2020 scholarship for IELTS test fee	

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**) 2026
- Medical Imaging with Deep Learning (**MIDL**) 2026
- Annual Conference on Neural Information Processing Systems (**NeurIPS**) 2025
- Neural Information Processing Systems (**NeurIPS**) 2025 Datasets & Benchmarks Track
- International Conference on Learning Representations (**ICLR**) 2025
- International Joint Conference on Artificial Intelligence (**IJCAI**) 2025 Survey Track
- **IJCAI** 2025 Special Track on AI for Social Good
- International Joint Conference on Neural Networks (**IJCNN**) 2025
- Medical Imaging with Deep Learning (**MIDL**) 2025
- Latinx in AI Workshop at **NeurIPS** 2025
- International Conference on Green Artificial Intelligence and Industrial Applications (**GreenAI** 2025)
- Latinx in AI Workshop at **NeurIPS** 2024
- ACM Special Interest Group on Management of Data (**SIGMOD**) 2023 Availability & Reproducibility

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 ...

Research Projects Before Doctoral Research

- **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