Songlin Jiang

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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**. 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
- 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 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, *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 – 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. 171.7k GitHub stars across all of the following selected repositories:

1. deepspeedai/DeepSpeed   ★40.2k *Training Framework*   2025
   Rank #40 among all contributors with 12 commits, 119 lines of additions and 76 lines of deletions
2. zhuzilin/ring-flash-attention   ★876   *Ring Attention*   2025
   Rank #3 among all contributors with 4 commits, 124 lines of additions and 23 lines of deletions
3. volcengine/verl   ★13.6k *RLHF Framework*   2025
   Rank #15 among all contributors with 19 commits, 854 lines of additions and 618 lines of deletions
4. OpenRLHF/OpenRLHF   ★8k   *RLHF Framework*   2024
   Rank #5 among all contributors with 33 commits, 531 lines of additions and 199 lines of deletions
5. run-llama/llama_index   ★44.4k *RAG Framework*   2023
6. kubescape/kubescape   ★11k   *Kubernetes Security Platform*   2023
   Rank #9 among all contributors with 40 commits, 745 lines of additions and 555 lines of deletions
7. Igalia/wolvic   ★903   *Immersive VR Browser*   2023
8. VowpalWabbit/vowpal_wabbit   ★8.6k *Machine Learning System*   2022
   Rank #58 among all contributors with 8 commits, 0 lines of additions and 0 lines of deletions
9. rust-headless-chrome/rust-headless-chrome   ★2.7k *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   ★763   *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 ★144 *Bitcoin Packages for Debian*   2022
    Rank #3 among all contributors with 7 commits, 245 lines of additions and 22 lines of deletions
12. HollowMan6/mdbook-pdf   ★188   *MdBook backend for PDF Generation* 2022
    Rank #1 among all contributors with 61 commits, 3515 lines of additions and 742 lines of deletions

13. mit-cml/workspace-multiselect   ★14   *Blockly Multi-Select Plugin*   2022
   Rank #1 among all contributors with 50 commits, 18358 lines of additions and 25270 lines of deletions
14. openSUSE/Customize-IBus   ★78   *Full Customization of IBus UI*   2021
   Rank #1 among all contributors with 371 commits, 53904 lines of additions and 40932 lines of deletions
15. HollowMan6/Wechat-Timed-Message   ★23   *GitHub action for WeChat Message*   2021
   Rank #1 among all contributors with 99 commits, 4139 lines of additions and 1718 lines of deletions
16. openSUSE/IBus-Theme-Hub   ★30   *IBus Themes CSS Hub*   2021
   Rank #1 among all contributors with 21 commits, 3190 lines of additions and 442 lines of deletions
17. openSUSE/IBus-Theme-Tools   ★21   *IBus Theme Generator*   2021
   Rank #1 among all contributors with 104 commits, 8558 lines of additions and 4654 lines of deletions
18. alibaba/arthas   ★36.7k *Java Diagnostic Tool*   2020
   Rank #2 among all contributors with 80 commits, 25191 lines of additions and 1543 lines of deletions
19. emacs-eaf/emacs-application-framework   ★3.3k *Emacs Application Framework*   2020
   Rank #5 among all contributors with 49 commits, 3482 lines of additions and 1033 lines of deletions
20. HollowMan6/TinyML-ESP32   ★175   *TinyML Programs for ESP32*   2020
   Rank #1 among all contributors with 11 commits, 78393 lines of additions and 19530 lines of deletions
21. HollowMan6/SRMD-Pytorch   ★26   *Super Resolution Model*   2020
   Rank #1 among all contributors with 23 commits, 21397 lines of additions and 1399 lines of deletions

Publications [Google Scholar, 177 citations with h-index of 1]

2019...

2025...

1. *OpenRLHF: An Easy-to-use, Scalable and High-performance RLHF Framework*
   Jian Hu, Xibin Wu, Wei Shen, Jason Klein Liu, Zilin Zhu, Weixun Wang, **Songlin Jiang**,
   Haoran Wang, Hao Chen, Bin Chen, Weikai Fang, Xianyu, Yu Cao, Haotian Xu, and Yiming Liu
   Conference on Empirical Methods in Natural Language Processing (**EMNLP**) System Demonstrations
   2025

2019...

2. *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 × scholarship for academic excellence, 5 × 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

○ 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

○ Student Research Workshop (SRW) at **ACL** 2025

○ Workshop on Recent Advances in Time Series Foundation Models (BERT2S) at **NeurIPS** 2025

○ Workshop on Mathematical Reasoning and AI (MATH-AI) at **NeurIPS** 2025

○ Latinx in AI Workshop at **NeurIPS** 2025

○ Workshop SoLaR at Conference on Language Modeling (**COLM**) 2025

○ Deployable AI Workshop (DAI) at AAAI Conference on Artificial Intelligence (**AAAI**) 2025

○ Multi-Agent AI in the Real World (MARW) Workshop at **AAAI** 2025

○ International Workshop on AI Governance (AIGOV) at **AAAI** 2025

○ Workshop on Deep Generative Model in Machine Learning: Theory, Principle and Efficacy at **ICLR** 2025

○ Workshop on GenAI Watermarking at **ICLR** 2025

○ Workshop on Foundation Models in the Wild at **ICLR** 2025

○ Workshop XAI4Science at **ICLR** 2025

○ International Conference on Green Artificial Intelligence and Industrial Applications (**GreenAI** 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

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

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