

# JIAWEI LIU

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## RESEARCH INTEREST

Making next-generation software stack **high-performance** (Systems), **reliable** (SE) and **easy-to-use** (PL).

**On-going research:** Programming and Auto-Testing Support for Scalable Machine Learning Systems;

**Undergrad research:** High-performance Computing & Scalable Data Systems;

## EDUCATION

**University of Illinois at Urbana-Champaign**, IL, US  
Ph.D. in Computer Science; GPA: 4.0/4.0

*Aug. 2021 - Present*  
Advisor: [Lingming Zhang](#)

**Tongji University**, Shanghai, China  
B.Eng. in Computer Science

*Sept. 2017 - Jul. 2021*

## PUBLICATION

***OOPSLA '22* | Coverage-Guided Tensor Compiler Fuzzing with Joint IR-Pass Mutation**

- Jiawei Liu, Yuxiang Wei, Sen Yang, Yinlin Deng, Lingming Zhang. (to appear) [\[code\]](#) [\[artifact\]](#)

***ACM MM'21 OSC* | Fast and Flexible Human Pose Estimation with HyperPose**

- Yixiao Guo\*, Jiawei Liu\*, Guo Li\*, Luo Mai, Hao Dong. (\*equal contribution) [\[code\]](#) [\[paper\]](#)

## PROFESSIONAL EXPERIENCES

**Research Intern at [OctoML](#) (Incoming)**

Advised by: [Dr. Yuchen Jin](#), [Prof. Tianqi Chen](#) (CMU)

*May. 2022 - Aug. 2022 (expected)*  
Topic: *DL Compilers*

**Research Assistant at [PL/FM/SE Group](#), UIUC**

Advised by: [Prof. Lingming Zhang](#)

*Apr. 2021 - Present*  
Topic: *Auto-Testing MLSys*

**Research Intern at DAMO Academy, Alibaba-Inc**

Advised by: [Dr. Yuanwei \(Kevin\) Fang](#), [Prof. Yuan Xie](#) (UCSB)

*Mar. 2021 - Aug. 2021*  
Topic: *Scaling GNN Systems*

**Research Assistant at NYU Systems Group**

Advised by: [Prof. Jinyang Li](#)

*Jul. 2020 - Mar. 2021*  
Topic: *Cloud Video Systems*

**Research Assistant at [Hyperplane Lab](#), [CFCS](#), Peking University**

Advised by: [Prof. Hao Dong](#) (Peking Univ.), [Prof. Luo Mai](#) (Univ. of Edinburgh)

*Jan. 2020 - Aug. 2020*  
Topic: *Pose Estimation Systems*

**Intern at AI Lab, ByteDance Ltd.**

Advised by: Guanzhe Huang, [Dr. Chuanxiong Guo](#)

*Feb. 2020 - Jul. 2020*  
Topic: *DNN Serving*

## NOTABLE ACHIEVEMENTS

Qidi Innovation Scholarship of Tongji University (Top 1%)

*Oct. 2020*

Selected Entrant for 2020 [Google](#) Machine Learning Winter Camp<sup>†</sup>

*Dec. 2019*

Winner of International Data Science Hackathon (Chinese Region), [Covestro](#)<sup>†</sup> [\[news\]](#)

*Nov. 2019*

National 2nd Prize and Province-level 1st Prize in RoboMaster, [DJI Inc.](#)

*Aug. 2019*

Honorable Prize of COMAP's Mathematical Modeling Contest (MCM/ICM)<sup>†</sup>

*Feb. 2019*

2nd Prize of Outstanding Student Scholarship, Tongji Univ.

*Nov. 2018*

National 2nd Prize (0.75~3.84%) and Province-level 1st Prize of Chinese Modeling Contest<sup>†</sup>

*Nov. 2018*

†: as the team leader.

## OPEN-SOURCE CONTRIBUTIONS

I embrace and grow with open-source communities.

As the main committer of **TensorLayer** community, I lead the **HyperPose** to support various performance-critical computer vision applications, winning over **1100 stars** since developed.

My current research facilitates the reliability of the fundamental machine learning systems, helping detect and fix over **70** real-world bugs for **TensorFlow**, **PyTorch**, **TVM**, etc. Notably, my recent work **TZER** detected **49** bugs in the state-of-the-art DL compiler – **TVM** that I am nominated as a reviewer in TVM community.

## STUDENT MENTORING

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**Yuxiang Wei**

Undergraduate of Tongji University → UIUC Ph.D. Program (Fall 2022)

**Sen Yang**

Master Student of Fudan University

## SKILL STACK

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Proficient in code optimization, parallel programming, system testing, ML systems and ML.

**Common:** C++ (expert), Python, Go, Rust, Docker, Shell, Git, SQL,  $\text{\LaTeX}$ , Grafana, GDB

**High-Perf. Computing:** CUDA, C++ Thread Library, Protobuf, gRPC, Kafka, Protobuf, Thrift, OpenMP

**Machine Learning & Systems:** PyTorch, TensorRT, TensorFlow, TVM, ONNX, OpenCV

**System Correctness:** z3, Dafny, LLVM Sanitizers, Valgrind