

JIAWEI LIU

(+1) 217 200 1084 ◊ jiawei6@illinois.edu ◊ [GitHub](#) ◊ [HomePage](#)

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. [\[code\]](#) [\[artifact\]](#) [\[paper\]](#)

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

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

“*” indicates equal contribution.

PROFESSIONAL EXPERIENCES

Research Intern at [OctoML](#)

Advised by: [Dr. Yuchen Jin](#)

May. 2022 - Aug. 2022
Topic: *Tensor Compilers*

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

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

Apr. 2021 - Present
Topic: *Testing ML Sys*

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

Dec. 2019

Winner of International Data Science Hackathon (Chinese Region), [Covestro](#) [\[news\]](#)

Nov. 2019

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

Aug. 2019

National *3rd* Prize of Chinese Collegiate Computing Competition

Jul. 2019

Honorable Prize of COMAP's Mathematical Modeling Contest (MCM/ICM)

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

Nov. 2018

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 **90** 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.

TALKS

Coverage-Guided Tensor Compiler Fuzzing with Joint IR-Pass Mutation

- SAMPL Lunch Talks, University of Washington May 2022
- UIUC Software Engineering Seminar, University of Illinois at Urbana-Champaign April 2022

STUDENT MENTORING

Yuxiang Wei (Summer 2021) Undergraduate at Tongji Univ. → UIUC Ph.D.
Sen Yang (Summer 2021) Graduate at Fudan Univ. → (Duke → Yale) Ph.D.

SKILL STACK

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

Common: C++ (expert), Python, Go, Rust, Docker, Shell, Git, SQL, \LaTeX , Grafana, GDB

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

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

System Correctness: Z3, Dafny, LLVM Sanitizers, Valgrind