

JIAWEI LIU

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RESEARCH INTEREST

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

On-going research: Fuzzing ML Systems & ML for Programs;

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

EDUCATION

University of Illinois at Urbana-Champaign, IL, US
Ph.D. in Computer Science

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

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

Sept. 2017 - Jul. 2021

PROFESSIONAL EXPERIENCES

Research Assistant at [PL/FM/SE Group](#), UIUC
Advised by: [Prof. Lingming Zhang](#)

Apr. 2021 - Present
Topic: *System Reliability & ML*

Research Intern at DAMO Academy, Alibaba-Inc
Advised by: [Dr. Yuanwei \(Kevin\) Fang](#), [Prof. Yuan Xie](#)

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

Feb. 2020 - Jul. 2020
Topic: *Cloud Model Serving*

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)

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

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

NOTABLE ACHIEVEMENTS

Qidi Innovation Scholarship of Tongji University (Top 1%)	<i>Oct.2020</i>
Selected Entrant for 2020 Google Machine Learning Winter Camp [†]	<i>Dec.2019</i>
Winner of International Data Science Hackathon (Chinese Region), Covestro [†] [news]	<i>Nov.2019</i>
National <i>2nd</i> Prize and Province-level <i>1st</i> Prize in RoboMaster, DJI Inc.	<i>Aug.2019</i>
National <i>3rd</i> Prize of Chinese Collegiate Computing Competition [†]	<i>Jul.2019</i>
Honorable Prize of COMAP's Mathematical Modeling Contest (MCM/ICM) [†]	<i>Feb.2019</i>
<i>2nd</i> Prize of Outstanding Student Scholarship, Tongji Univ.	<i>Nov.2018</i>
National <i>2nd</i> Prize (0.75~3.84%) and Province-level <i>1st</i> Prize of Chinese Modeling Contest [†]	<i>Nov.2018</i>

†: as the team leader.

OPEN-SOURCE CONTRIBUTIONS

I embrace open-source communities. Here is some open-source projects by me:

Systems: [HyperPose](#) (1k+ stars), [ThreadPools](#), [JustRelaxFileSystem](#), [TorchFlow](#) (ML snapshot manager)

Computer Vision: [MagicFilter](#) (human matting), [Action Recognition on DVS](#), [Robot Armor Detector](#)

Others: [Bimulator](#) (ray tracing game), [Research Reading](#), [Computer Science Notes](#)

I also actively detect/fix bugs of open-source systems (e.g., [TVM](#) and [TensorFlow](#)). I am a member of [TensorLayer](#) community and a reviewer of [TVM](#) community.

SKILL STACK

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

Common: C++ (expert), Python, Go, Docker, Shell, Git, SQL, \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