

# JIAWEI LIU

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## RESEARCH INTEREST

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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

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**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

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

*Apr. 2021 - Present*  
Topic: *AI & SE*

**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: *Model Serving*

## PUBLICATION

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

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

**ACM MM'22 OSC | Fast and Flexible Human Pose Estimation with HyperPose**

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

## NOTABLE ACHIEVEMENTS

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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*

National *3rd* Prize of Chinese Collegiate Computing Competition<sup>†</sup>

*Jul.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

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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

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

**Common:** C++ (expert), Python, Go, Docker, Shell, Git, SQL, L<sup>A</sup>T<sub>E</sub>X, 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