

# JIACHENG MA

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## EDUCATION

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### University of Michigan

*Ph.D. Pre-Candidate in Computer Science*

Thesis Topic: Heterogeneous System in Virtualization

Advisor: Prof. Baris Kasikci

*Ann Arbor, MI, USA*

Sep. 2018 – Present

### Shanghai Jiao Tong University

*B.E. in Software Engineering*

Thesis: gMig: Efficient GPU Live Migration Optimized by Software Dirty Page for Full Virtualization

Advisor: Prof. Zhengwei Qi

*Shanghai, China*

Sep. 2014 – Jun. 2018

## SELECTED PUBLICATIONS

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- [1] A Hypervisor for Shared-Memory FPGA Platforms. Jiacheng Ma, Gefei Zuo, Kevin Loughlin, Xiaoheng Cheng, Yanqiang Liu, Abel Mulugeta Eneyew, Zhengwei Qi, and Baris Kasikci. *ASPLOS*, 2020.
- [2] gMig: Efficient GPU Live Migration Optimized by Software Dirty Page for Full Virtualization. Jiacheng Ma, Xiao Zheng, Yaozu Dong, Wentai Li, Zhengwei Qi, Bingsheng He, and Haibing Guan. *VEE*, 2018.
- [3] gScale: Scaling up GPU Virtualization with Dynamic Sharing of Graphics Memory Space. Mochi Xue, Kun Tian, Yaozu Dong, Jiacheng Ma, Jiajun Wang, Zhengwei Qi, Bingsheng He, and Haibing Guan. *USENIX ATC*, 2016.

## SELECTED PROJECTS

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### FPGA Virtualization

Apr. 2018 – Aug. 2019

In this project, we built the a hypervisor for shared-memory FPGA platforms. The hypervisor supports both spatial and temporal multiplexing, and scales linearly until bandwidth is saturated.

### vGPU Live Migration

Dec. 2016 – Jul. 2017

This work enables live migrating vGPUs for Intel GVT-g, an open-source GPU virtualization solution.

### Scaling up GPU Virtualization

Jan 2016 – Mar 2017

This project scales up the maximum number of vGPUs in Intel GVT-g (for up to 5x on Haswell) and minimizes the performance impact.

## WORKING EXPERIENCE

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### Software Developer Intern at Intel Open Source Technology Center

Jul. 2016 – Jun. 2018

Project: GPU Virtualization; advisor: Dr. Yaozu Dong

### Teaching Assistant at School of Software, SJTU

Feb. 2016 – Jun. 2016

Programming and Data Structure (SE 117)

## AWARDS AND HONORS

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ASPLOS Student Travel Grant

2020

SOSP Student Travel Grant

2019

ASPLOS/VEE Student Travel Grant

2018

## TECHNICAL SKILLS

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Programming Language: C, C++, Verilog, System Verilog

Virtualization: KVM, QEMU, Mediated Pass-Through