

# GUANZHOU HU

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## EDUCATION

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### University of Wisconsin—Madison

Ph.D. Student, Computer Science

*Aug 2020 - Present*

*Madison, WI, USA*

- Advised by Prof. Andrea Arpaci-Dusseau and Prof. Remzi Arpaci-Dusseau
- Research area: Operating systems, Storage systems, NVM devices, OS kernel optimizations

### ShanghaiTech University

B. Eng., Computer Science & Technology

*Sep 2016 - Jul 2020*

*Shanghai, China*

- GPA: 3.9 / 4.0 (rank 2 / 183)
- Honors: Dean's Scholarship (2019), President's Scholarship (2017, 2018)
- Relevant coursework: Operating systems, Computer architecture III, Parallel computing

### Massachusetts Institute of Technology

Special Student, Electrical Engineering & Computer Science

*Sep 2019 - Jun 2020*

*Cambridge, MA, USA*

- GPA: 4.0 / 4.0
- Relevant coursework: Distributed systems, Computer networks, Computer systems security

## PUBLICATIONS & PATENTS

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### **Dorylus: Affordable, Scalable, and Accurate GNN Training over Billion-Edge Graphs.**

John Thorpe, Yifan Qiao, Jonathan Eyolfson, Shen Teng, Guanzhou Hu, Zhihao Jia, Jinliang Wei, Keval Vora, Ravi Netravali, Miryung Kim, and Guoqing Harry Xu. 2021. In Proceedings of the 15th USENIX Symposium on Operating Systems Design and Implementation (OSDI '21). USENIX Association.

### **The Storage Hierarchy is Not a Hierarchy: Optimizing Caching on Modern Storage De-**

**vices with Orthus.** Kan Wu, Zhihan Guo, Guanzhou Hu, Kaiwei Tu, Ramnaththan Alagappan, Rathijit Sen, Kwanghyun Park, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. 2021. In Proceedings of the 19th USENIX Conference on File and Storage Technologies (FAST '21). USENIX Association.

### **BORA: A Bag Optimizer for Robotic Analysis.**

Jian Zhang, Tao Xie, Yuzhuo Jing, Yanjie Song, Guanzhou Hu, Si Chen, and Shu Yin. 2020. In Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC '20). IEEE Press, Article 12, 1–15.

### **A Storage System Management Policy Based on Data Content Locality.**

Yin, S. and Hu, G. 2019. CN. Patent application 201910499391.9, filed in June 2019.

## RESEARCH EXPERIENCE

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### **Operating System Kernel Optimizations for New-Era Storage**

Ph.D. Student, UW-Madison, with Prof. Andrea & Remzi Arpaci-Dusseau

*Aug 2020 - Present*

*Madison, WI, USA*

- Ongoing graduate student research at UW-Madison.

### **Scalable & Affordable GCNs with Serverless Computing**

CSST Research Intern, UCLA, with Prof. Harry Xu

*Jul 2019 - Oct 2019*

*Los Angeles, CA, USA*

- Integrated serverless computing into graph computing to build an affordable, efficient, and scalable graph convolutional networks (GCNs) computation platform without dedicated GPUs.
- Implemented the first workable prototype with AWS Lambdas service, and reached linear scalability and 100% cost-efficiency.

**NcTrace: Optimized Trace Data Storage with the netCDF Format** *Mar 2019 - Aug 2019*  
 Leader of Project Team, ShanghaiTech, with Prof. Shu Yin *Shanghai, China*

- Optimized storage of comma-separated values (CSV) trace data using the netCDF format. Introduced the "dimension packing" model which reduces file size and accelerates analysis tasks.
- Tested with Google cluster traces, and achieved 7:1 size reduction with 2 orders of magnitude acceleration on reading.

**Active I/O: Parallel Content-Aware Storage System** *Jan 2019 - Aug 2019*  
 Research Assistant, ShanghaiTech, with Prof. Shu Yin *Shanghai, China*

- Designed a high-performance, parallel file system which aims to dig out the "content locality" within highly-structured data formats, by clustering data by topics and providing users a better locality when operating on a subset of topics.
- Tested with Robot Operating System bag files, and achieved 6.5x performance improvement on opening and at least 1.4x on reading.

## TEACHING EXPERIENCE

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<b>Teaching Assistant in Operating Systems</b> CS537, Computer Sciences Department, UW-Madison	<i>Jan 2021 - May 2021</i> <i>Madison, WI, USA</i>
<b>Teaching Assistant in Computer Architecture</b> CS552, Computer Sciences Department, UW-Madison	<i>Aug 2020 - Dec 2020</i> <i>Madison, WI, USA</i>
<b>Teaching Assistant in Computer Architecture</b> CS110, School of Information Science & Technology, ShanghaiTech	<i>Feb 2019 - Apr 2019</i> <i>Shanghai, China</i>
<b>Teaching Assistant in Operating Systems</b> CS130, School of Information Science & Technology, ShanghaiTech	<i>Sep 2018 - Jan 2019</i> <i>Shanghai, China</i>
<b>Teaching Assistant in Discrete Mathematics</b> SI120, School of Information Science & Technology, ShanghaiTech	<i>Mar 2018 - Jul 2018</i> <i>Shanghai, China</i>

## PRIZES & AWARDS

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Outstanding Research Award, CSST Program 2019, UCLA	<i>Sep 2019</i>
Second Class Prize, ASC Supercomputing Competition 2019 (GeekPie.HPC team leader)	<i>Mar 2019</i>
Outstanding Teaching Assistant Award, ShanghaiTech University	<i>Jan 2019</i>
Meritorious Winner, Mathematical Contest in Modelling (MCM) 2018	<i>Apr 2018</i>

## MISCELLANEOUS

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- **Skills:** System programming, C/C++, Rust, Go, Python, Linux server dev/ops, x86, MIPS
- **Languages:** Chinese (native), English (fluent)