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Bodun Hu

Research Interests

Systems for ML, Operating System, heterogeneity, ML SW-HW Co-design, Distributed System

Education

2021–Present **Ph.D. in Computer Science**, *The University of Texas at Austin*, Austin, TX.
Advisor: Aditya Akella

2020–2021 **M.S. in Computer Science**, *The University of Texas at Austin*, Austin, TX.
Advisor: Christopher J. Rossbach

2016–2020 **B.S. in Computer Science (Research Distinction)**, *The University of Texas at Austin*, Austin, TX.
Advisor: Christopher J. Rossbach

Publications

[1] **Bodun Hu** and Christopher J. Rossbach. "Altis: Modernizing GPGPU Benchmarks". In *Proceedings of the 2020 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)*, August 2020. 14p 29.5%.

[2] Henrique Fingler, Isha Tarte, Hangchen Yu, Ariel Szekely, **Bodun Hu**, Aditya Akella, Christopher J. Rossbach. "Towards a Machine Learning-Assisted Kernel with LAKE". In *Proceedings of the Twenty Eighth International Conference on Architectural Support for Programming Languages and Operating System (ASPLOS)*, March 2023.

Research Experience

2020–Present **UTNS**, *UT Austin*.
- Ongoing work on developing efficient serving system for multimodal models by ML-based offline optimization and online-heutistic

2022 **Switch & Fabric Group**, *Intel*.
- **Lightweight Network Telemetry in TCP Transport (TCP-INT)**: Improved TCP-INT eBPF module for better e2e visibility and improved closed-loop control of TCP workloads.

2017–2021 **SCEA Lab**, *UT Austin*.
- **Automatic Accelerator Support for OS Kernel(ASPLOS'23)**: Built a generic API remoting system to expose accelerator APIs to kernel subsystems with close-to-native performances.
- **GPU Benchmark Suite (ISPASS'20)**: Designed a benchmark with improved diversity over existing GPU benchmarks by extending application domains with modern CUDA features.

2019–2020 **Laboratory for Advanced Systems Research**, *UT Austin*,
with Simon Peter.
- Ported TAS into P4 to facilitate TCP fast-path migration to programmable NICs.

2016–2017 **Neural Networks Research Group**, *UT Austin*.
- Designed and implemented an automated detection system utilizing readily available hardware, which accurately detects and terminates 3D printing processes upon identification of object defects

Industry Experience

2018 **Software Engineering Intern**, *H3C*, Chengdu, China.
- Devised and implemented a highly effective caching strategy, resulting in a significant reduction of video streaming processing latency on Kubernetes cluster by a factor of 3x.

2017 **Software Engineering Intern**, *Wisesoft*, Chengdu, China.
- Developed a data preprocessing pipeline for improved audio classification in an air traffic control system.

Awards

2020 ISPASS Student Travel Award.

2020 Research Distinction by the College of Natural Sciences.

Teaching Experience

Spring 2020 **TA: Multicore Operating System Implementation (378)**, *The University of Texas at Austin*.
Instructor: Simon Peter

Presentations

Aug 2020 *Altis: Modernizing GPGPU Benchmarking*, presented at ISPASS'20

Nov 2020 *Accelerating Kernel Access to Hardware Acceleration*, presented at Texas Systems Symposium

Service

2021 **Junior Graduate Admissions Committee**, *The University of Texas at Austin*.