

Chao Chen

Email: chao.chen@gatech.edu , **Phone:** (806)620-8598, **Homepage:** <http://cchen435.com>

Education

2014/09–Present	Ph.D. in Computer Science, Georgia Institute of Technology	USA
2008/09–2011/06	Master in Computer Science, Hunan University	China
2004/09–2008/06	BS in Computer Science, Hunan University	China

Experience

2016/05–2016/08	Research Intern at VMWare CTO Office Topic: Photon platform for container-based high performance computing. Design and implement a framework to spawn/create virtual clusters based on the container technology. Manager: Josh Simons, Mentor: Na Zhang
2013/05–2013/12	Research Intern at New Mexico Consortium/Los Alamos National Lab Topic: Active burst-buffer nodes for data-intensive computing. Design and implement a framework to explore compute power in burst-buffer nodes (in I/O path) on Supercomputers to mitigate I/O overheads. Manager/Mentor: Michael Lang
2010/05–2010/08	Intern at Motorola Mobility Technologies (China) Co., Ltd Linux Driver Development. Manager/Mentor: Ying Fan

Skills

C/C++, Python, Compiler and Program Analysis (LLVM), MPI/OpenMP, Assembly, Reverse Engineering, Machine Learning (Caffe, MXNet), MapReduce.

Projects

2019/09 – Present	Efficient sharing of Multi-GPU Systems In this project, we are exploring the potential of building a framework to manage, schedule and share multiple GPU devices in a single node among various of workloads.
2018/10 – 2019/09	Compiler-assisted scheduling for many-core systems In this project, we proposed a novel approach that dynamically incorporates application attributes via compiler to undertake smart scheduling decisions to mitigate conflicts of shared resources (e.g., cache) among jobs, thereby improving the system performance.
2017/05 – 2019/04	Compiler-assisted recovery for soft failures In this project, we presented a compiler-assisted technique to repair the (crashed) process on-the-fly, allowing applications to continue their executions instead of being terminated.
2015/05 – 2017/04	Light-weight SDC detector for HPC Applications In this paper, we present a low-cost application-level SDC detector for scientific applications by incorporating data-anomaly detection and compile-time data-flow analysis.
2013/05 – 2013/12	Active burst-buffer The project investigates the computing resources of burst-buffer nodes on modern HPC systems (Supercomputers) for data analysis or visualization to mitigate the I/O overheads.
2008/05 – 2010/06	Autonomous Vehicle In this project, we built an intelligent vehicle prototype from the scratch, including low level control system (embedded system), computer vision based road and traffic sign detection, silicon radar based obstacle detection and route planning.

Publications

1. [SC19] **CARE: Compiler-assisted Recovery from Soft Failures (to appear) (Best Student Paper Finalist)**
Chao Chen, Greg Eisenhauer, Santosh Pande and Qiang Guan
In International Conference for High Performance Computing, Networking, Storage, and Analysis.
Denver, CO, Nov, 2019.
2. [HPDC18] **LADR: Low-cost Application-level Detector for Reducing Silent Output Corruptions**
Chao Chen, Greg Eisenhauer, Matthew Wolf and Santosh Pande
In ACM International Symposium on High-Performance Parallel and Distributed Computing.
Tempe, Arizona, Jun, 2018.
3. [NAS16] **Active Burst-Buffer: In-Transit Processing Integrated into Hierarchical Storage (Best Paper Award)**
Chao Chen, Michael Lang, Latchesar Ionkov and Yong Chen
In 11th IEEE International Conference on Networking, Architecture, and Storage.
Long Beach, CA, Aug, 2016.
4. [ISPA16] **Rethinking High Performance Computing System Architecture for Scientific Big Data Applications (Best Paper Award)**
Yong Chen, **Chao Chen**, Yanlong Yin, Xianhe Sun, Rajeev Thakur and William Gropp
In 14th IEEE International Symposium on Parallel and Distributed Processing with Applications.
Tianjin, China, Aug, 2016.
5. [BigData13] **Multilevel Active Storage for Big Data Applications in High Performance Computing (short paper)**
Chao Chen, Michael Lang and Yong Chen
In The 2013 IEEE International Conference on Big Data.
Santa Clara, CA, Oct, 2013.
6. [Cluster12] **A Decoupled Execution Paradigm for Data-Intensive High-End Computing**
Yong Chen, **Chao Chen**, Xian-He Sun, William D. Gropp, and Rajeev Thakur
In International Conference on Cluster Computing.
Beijing, China, Sep, 2012.
7. [Cluster12] **DOSAS: Mitigating the Resource Contention in Active Storage Systems**
Chao Chen, Yong Chen and Philip C. Roth
In International Conference on Cluster Computing.
Beijing, China, Sep, 2012.
8. [ICPP12] **Dynamic Active Storage for High Performance I/O**
Chao Chen and Yong Chen
In 41st International Conference on Parallel Processing.
Pittsburgh, PA, Sep, 2012.

Research Funding

- National Science Foundation (China), "Study on storage system optimization based on logical and physical I/O information", RMB 230,000 (Co-PI, 01/14 - 12/16).

Achievements

- Best Student Paper Finalist from **SC**, 2019.
- Best Paper Award from **NAS**, 2016.
- Best Paper Award from **ISPA**, 2016.
- **Champion** of The Future Challenge: Intelligent Vehicles and Beyond Contest (**Team**). By **National Science Foundation (China)**, 2009.
- **First Prize** of National Undergraduate Electronic Design Contest-Embedded System Design Invitational Contest (**Team**). By **Intel**, **Ministry of Education (China)**, and **Ministry of Industry and Information Technology (China)**, 2008.
- **first-class** scholarships (2005, 2007, 2008) and **second-class** scholarship (2006). By **Hunan University**.

Teaching and Professional Activities

Teaching Assistant

- CS310 Operating System Design
- CS6290 High Performance Computer Architecture
- CS4240 Compilers and Interpreters
- CS8803-008 Compiler: Theory and Practice

Services

- External Reviewer of PACT'18.
- Volunteer of SC'13.
- External Reviewer of IEEE BigData'13.
- External Reviewer of CCGrid'13.
- External Reviewer of NAS'12.
- External Reviewer of ISPA'11.