

Jian Xu (Andiry)

9134 Regents Road, Apt E, La Jolla CA 92037

Cell: 858-900-6842

Education: CS PhD candidate

E-mail: jix024@cs.ucsd.edu andiry.xu@gmail.com

Linkedin: <https://www.linkedin.com/in/jian-xu-andiry>

Github: <https://github.com/Andiry>

Publication:

Fortis: A Hardened Non-Volatile Main Memory File System

Jian Xu, Lu Zhang, Amirsaman Memaripour, Akshatha Gangadharaiah, Amit Borase, Tamires Brito Da Silva, Andy Rudoff and Steven Swanson

In *The 26th ACM Symposium on Operating Systems Principles (SOSP '17)*

NOVA: A Log-structured File System for Hybrid Volatile/Non-volatile Main Memories

Jian Xu and Steven Swanson

In *The 14th USENIX Conference on File and Storage Technologies (FAST '16)*

DC Express: Shortest Latency Protocol for Reading Phase Change Memory over PCI Express

Dejan Vucinic, Qingbo Wang, Cyril Guyot, Robert Mateescu, Filip Blagojevic, Luiz Franca-Neto, Damien Le Moal, Trevor Bunker, *Jian Xu*, Steven Swanson and Zvonimir Bandic

In *The 12th USENIX Conference on File and Storage Technologies (FAST '14)*

BankShot: Caching slow storage in fast non-volatile memory

Meenakshi Sundaram Bhaskaran, *Jian Xu*, and Steven Swanson

In *1st Workshop on Interactions of NVM/Flash with Operating Systems and Workloads (INFLOW '13)*

Sentinel: An Occupancy Based HVAC Actuation System using existing WiFi Infrastructure in Commercial Buildings

Bharathan Balaji, *Jian Xu*, Rajesh Gupta, and Yuvraj Agarwal

In *11th ACM Conference on Embedded Networked Sensor Systems (SenSys '13)*

Education:

University of California, San Diego, PhD candidate

September 2012 – Present

Computer Science and Engineering, Non-Volatile Systems Laboratory

Shanghai JiaoTong University, Master

September 2005 – March 2008

Telecommunication and Information Systems

Shanghai JiaoTong University, Bachelor

September 2001 – June 2005

Electronic Engineering

Technical Skills:

- Languages: Proficient in C, familiar with Java, C++, Python.
- Systems: Proficient in Linux kernel, file system and device driver development.
- Development: Familiar with Git/svn, have rich experience in communication with Linux community and distribution vendors.

Project Experience:

NOVA/Fortis: A highly-reliable file system for Hybrid Volatile/Non-volatile Main Memories

February 2015 – June 2017

- I designed and implemented NOVA/Fortis, a log-structured file system that optimized for persistent memory with strong data consistency guarantee.
- NOVA supports snapshot and provides strong metadata/data reliability guarantee with low overhead.
- NOVA is the fastest persistent memory file system in the world:
 - 22% to 216× throughput improvement compared to state-of-the-art file systems
 - 3.1× to 13.5× improvement compared to file systems that provide equally strong data consistency guarantees.
- NOVA is available on GitHub: <https://github.com/NVSL/Linux-nova>

Chell: A NVMM cache for slower storage devices *September 2013 – September 2014*

- I designed and implemented Chell, a NVMM caching system to accelerate slow storage access.
- Chell transparently cache data in fast NVMM, and provide direct access to NVMM pages via DAX-mmap, significantly reduce mode switch and system call overhead.

BankShot: Caching slow storage in fast non-volatile memory

September 2012 – June 2013

- Worked on Bankshot project, a storage architecture that uses fast PCM devices as cache for the secondary storages.
- Implemented asynchronous write back, software dirty bit check and scheduler write back policy.

Linux USB3.0 xHCI driver development

Nov 2009 – March 2012

- I am the second contributor to the Linux USB3.0 driver stack.
- Implemented and submitted following features of Linux USB3.0 driver:
 - Isochronous transfer support
 - Port/Bus/PCI/Link power management
 - xHCI 1.0 features
 - Transfer ring expansion
- Committed more than 80 patches to Linux kernel.

Work & Internship Experience:

Microsoft Research

June 2017 – Sept 2017

Summer Intern

- Add support for Open-Channel SSDs to Windows Azure fabric.
- Provides flexible resource management and strong isolation guarantee to minimize multi-tenant interference and improve tail latency.

VMware

June 2015 – Sept 2015

Summer Intern

- Worked on VMware ESXi persistent memory support.
- Implemented high availability support on ESXi with persistent memory.

HGST, a Western Digital Company

June 2013 – Sept 2013

Summer Intern

- Worked on future SSDs and Non-volatile memories research;
- Optimized software stack to exploit the performance potential of PCM device.
- Implemented and analyzed the performance impact of polling/interrupt, multithread and endpoint polling interval on PCM device.

AMD Shanghai R&D Center

Apr 2008 – August 2012

Senior Software Develop Engineer

- AMD South Bridge Linux device driver development and maintenance;
- AMD Chipsets Linux support.