

# Yixin Luo

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## EDUCATION

### CARNEGIE MELLON UNIVERSITY

PHD IN COMPUTER SCIENCE

Dec 2017 | Pittsburgh, PA

### UNIVERSITY OF MICHIGAN

BS IN COMPUTER SCIENCE

May 2012 | Ann Arbor, MI

Dean's List 2010, 2011, EECS Scholar 2010

### SHANGHAI JIAO TONG UNIVERSITY

BS IN ELECTRICAL ENGINEERING

May 2012 | Shanghai, China

Dean's List 2009

## LINKS

Github:// [camellyx](#)

LinkedIn:// [luoyixin](#)

## COURSEWORK

### GRADUATE

Deep Learning

Advanced Database Systems

Deep Reinforcement Learning

Machine Learning

Optimizing Compilers

Operating Systems and Distributed Systems

Advanced Cloud Computing

Graduate Algorithms

Computer Architecture

Computer Networks

(Teaching Assistant)

Parallel Computer Arch. and Programming

Parallel Computer Architecture

### UNDERGRADUATE

Computer Architecture + Major Design Proj.

VLSI Design + Major Design Proj.

Microprocessor-Based Systems

Operating Systems

Artificial Intelligence

Honors Mathematics

## SKILLS

### PROGRAMMING

Over 10,000 lines:

C++ • Python • Matlab • Shell • Verilog •  $\text{\LaTeX}$

Familiar:

Perl • HTML • Windows Batch • TensorFlow • PyTorch

Simulator & Tools:

Intel Pin • HSPICE • Cadence tools • gem5 •

Multi2Sim • MySQL/PostgreSQL

## EXPERIENCE

### SEAGATE TECHNOLOGY | ENGINEERING INTERN

May 2015 – Oct. 2015; May 2016 – Aug 2016 | Lakeview, CA

- Developed new tool to automatically test and analyze seven types of SSD errors
- Collected and analyzed 700 GB of SSD error data from real devices using data mining and statistical modeling techniques
- Developed four new models and ten new techniques to improve SSD lifetime

### MICROSOFT RESEARCH | RESEARCH INTERN

May 2014 – Aug. 2014 | Redmond, WA

- Developed new server architecture that can reduce datacenter TCO by 2.7%.
- Characterized memory error vulnerability of three important data-intensive applications running in datacenters

## RESEARCH

### CARNEGIE MELLON UNIVERSITY | GRADUATE RESEARCH ASSISTANT

Sep. 2012 – Present | Pittsburgh, PA

Worked with Prof. **Onur Mutlu** on improving storage and memory reliability, published 10 academic papers in Proceedings of the IEEE, MICRO, HPCA, DSN, JSAC, MSST, etc.

### UNIVERSITY OF MICHIGAN | RESEARCH ASSISTANT

May 2011 – May 2012 | Ann Arbor, MI

Worked with Prof. **Marios C. Papaefthymiou** and Prof. **Thomas F. Wenisch** on

**Computational Sprinting** of manycore processors on mobile devices that improves the responsiveness of interactive applications by 10 $\times$ .

Worked with Prof. **Todd M. Austin** and Dr. **Joseph L. Greathouse** on architecture support for **Unlimited Watchpoints** that accelerates dynamic software analysis by 9 $\times$ .

## AWARDS

2017 DFRWS EU Best Paper Award

2015 HPCA Best Paper Runner Up

2012 HPCA Best Paper Award

## SELECTED PUBLICATIONS

(Full publication list is available on my website.)

- [1] Y. Cai, S. Ghose, E. F. Haratsch, Y. Luo, and O. Mutlu. Error Characterization, Mitigation, and Recovery in Flash-Memory-Based Solid-State Drives. *Proc. IEEE*, Sep. 2017.
- [2] Y. Luo, S. Ghose, Y. Cai, E. F. Haratsch, and O. Mutlu. Enabling Accurate and Practical Online Flash Channel Modeling for Modern MLC NAND Flash Memory. *IEEE JSAC*, Sep. 2016.
- [3] Y. Cai, Y. Luo, E. F. Haratsch, K. Mai, and O. Mutlu. Data Retention in MLC NAND Flash Memory: Characterization, Optimization, and Recovery. In *HPCA*, 2015.
- [4] Y. Luo, Y. Cai, S. Ghose, J. Choi, and O. Mutlu. WARM: Improving NAND Flash Memory Lifetime With Write-Hotness Aware Retention Management. In *MSST*, 2015.
- [5] Y. Luo, S. Govindan, B. Sharma, M. Santaniello, J. Meza, A. Kansal, J. Liu, B. Khessib, K. Vaid, and O. Mutlu. Characterizing Application Memory Error Vulnerability to Optimize Datacenter Cost via Heterogeneous-Reliability Memory. In *DSN*, 2014.
- [6] A. Raghavan, Y. Luo, A. Chandawalla, M. Papaefthymiou, K. P. Pipe, T. F. Wenisch, and M. MK. Martin. Computational sprinting. In *HPCA*, 2012.