# LIFAN XU

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## RESEARCH INTERESTS

*Machine learning; Cybersecurity; High Performance Computing; Near Data Processing; Computer Vision*

## EDUCATION

- Ph.D. in Computer and Information Sciences, University of Delaware, GPA: *3.89/4.00*     *Spring 2016*
- M.S. in Computer and Information Sciences, University of Delaware, GPA: *3.82/4.00*     *Summer 2011*
- B.S. in Computer Science, National University of Defense Technology, GPA: *80/100*     *Spring 2008*

## SKILLS

- C, OpenCL, CUDA, OpenMP, MPI, HMPP, Python, Matlab, OpenGL, Verilog
- Excellent knowledge of GPU architecture and programming
- Bilingual: proficient in Chinese and English

## PROFESSIONAL EXPERIENCE

**Co-Op Engineer:** AMD, Sunnyvale, CA     *February, 2015 – Present*
- Software developer for deep learning on Process In Memory

**Research Assistant:** University of Delaware, Newark, DE     *January, 2009 – January, 2015*
- Advisor: John Cavazos

**Internship:** AMD, Sunnyvale, CA     *June – September, 2013*
- Software developer for Process In Memory applications and parallel image search

**Internship:** Oak Ridge National Laboratory, Knoxville, TN     *May – August, 2010*
- Software developer for Kinetic Monte Carlo Simulation parallelization using single GPU and multiple GPUs.

## SERVICE AND AWARDS

**Workshop Attendee:**
- Many-Core Processors for Science and Engineering Applications Summer School Workshop, Ohio State University, Columbus, OH     *August, 2009*

**Student Volunteer:**
- International Conference for High Performance Computing (SC'09), Portland, OR     *November, 2009*

**Awards:**
- Best Paper Finalist, HPDC 2014, for **TOP-PIM: Throughput-Oriented Programmable Processing in Memory**
- Best Paper Award, HPC 2014, for **Efficient Parallel Image Clustering and Search on a Heterogeneous Platform**
- Best Paper Award, MultiProg 2014, for **Parallelization of Shortest Path Graph Kernels on Multi-Core CPUs and GPUs**
- Member of the winning team at the Education Program Student Programming Contest in Super Computing 2009, Portland, Oregon, USA - Role in the team: CUDA programmer     *November, 2009*

## PUBLICATIONS

**Book Chapters:**
Lifan Xu, Dongping Zhang, and Dana Schaa, **Case Study: Image clustering**. In David Kaeli, Perhaad Mistry, Dana Schaa, and Dong Ping Zhang, Heterogeneous Computing with OpenCL 2.0, Chapter 9, pp. 213-228. Morgan Kaufmann Publishers, 2015.

**Journal Articles:**

Wei Wang, Lifan Xu, John Cavazos, Howie Huang, Matthew Kay, **Fast Acceleration of 2D Wave Propagation Simulations using Modern Computational Accelerators**. PLoS ONE 9(1): e86484. doi: 10.1371/journal.pone.0086484

Giorgos Arampatzis, Markos A. Katsoulakis, Petr Plecháč, Michela Taufer, Lifan Xu, **Hierarchical fractional-step approximations and parallel kinetic Monte Carlo algorithms**. Journal of Computational Physics, ISSN 0021-9991, 10.1016/j.jcp.2012.07.017.

**Peer-reviewed Papers:**

Lifan Xu, Dongping Zhang, Marco A. Alvarez, Jose A. Morales, John Cavazos, **Dynamic Android Malware Classification Using Graph-Based Representations**. In Proceedings of the IEEE International Conference on Cyber Security and Cloud Computing (CSCloud 2016), Beijing, China, 2016

Lifan Xu, Dongping Zhang, Nuwan Jayasena, John Cavazos, **HADM: Hybrid Analysis for Detection of Malware**. SAI Intelligent Systems Conference (IntelliSys) 2016, London, UK, 2016

Lifan Xu, Dongping Zhang, Nuwan Jayasena, **Scaling Deep Learning on Multiple In-Memory Processors**. WoNDP: 3rd Workshop on Near-Data Processing In conjunction with MICRO-48, Waikiki, USA, December, 2015.

Dongping Zhang, Nuwan Jayasena, Alexander Lyashevsky, Joseph Greathouse, Lifan Xu, Mike Ignatowski, **TOP-PIM: Throughput-Oriented Programmable Processing in Memory**. In Proceedings of the 23rd International ACM Symposium on High Performance Parallel and Distributed Computing (HPDC'14), Vancouver, Canada, June, 2014

Dongping Zhang, Lifan Xu, Lee Howes. **Efficient Parallel Image Clustering and Search on a Heterogeneous Platform**. 22nd High Performance Computing Symposium (HPC) 2014, Tampa, USA, *April 2014*

Lifan Xu, Wei Wang, Marco A. Alvarez, John Cavazos, Dongping Zhang, **Parallelization of Shortest Path Graph Kernels on Multi-Core CPUs and GPUs**. Programmability Issues for Heterogeneous Multicores (MultiProg '14), Vienna, Austria, *Januaray, 2014*

Scott Grauer-Gray, Lifan Xu, Robert Searles, Sudhee Ayalasomayajula, John Cavazos, **Auto-tuning a High-Level Language Targeted to GPU Codes**. In Proceedings of Innovative Parallel Computing (InPar'12), San Jose, USA, *May, 2012*

Lifan Xu, Michela Taufer, Stuart Collins, and Dionisios G. Vlacho, **Parallelization of Tau-Leap Coarse-Grained Monte Carlo Simulations on GPUs**. In Proceedings of the 24th IEEE International Parallel & Distributed Processing Symposium (IPDPS'10), Atlanta, Georgia, USA (Acceptance Rate: 127/527, 24%), *April, 2010*

**Peer-reviewed Posters:**                                                                          *November, 2009*

Lifan Xu, Stuart Collins, Dionisios G. Vlachos, and Michela Taufer, **Parallelization of the Tau-Leap Coarse-Grained Monte Carlo Method for Efficient and Accurate Simulations on GPUs**. Finalist at the ACM Student Research Competition, International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'09), Portland, Oregon, US