Leiming Yu

409 Dana Research Center,
360 Huntington Ave, Boston, MA 02115
617-515-1913 yu.lei@husky.neu.edu

Research Interests:

General Purpose Computing on GPU, High Performance Computing, Performance Optimization and Modeling

Education:

Northeastern University, Boston MA — Jan 2011-Present
Ph.D. Candidate in Computer Science and Engineering
Advisor: David Kaeli

University of Bridgeport, Bridgeport CT — Jan 2008-Dec2010
Master in Electrical Engineering
Advisor: Buket Barkana

Work Experience

May 2012-Aug 2012 Internship in Mathworks
1) Accelerate PSK Demodulator/Modulator on GPU
2) Accelerate LDPC Decoder for Large Parity Check Matrix on GPU
3) Speedup parfor section in commViterbiSystemGPU demo
4) Accelerate Turbodecoder on Matlab Distributed Computing Server (MDCS)

Academia Experience:

September 2011-Present	Research Assistant	Northeastern University (College of Engineering)
September 2008-Spring 2010	Graduate Assistant	University of Bridgeport (School of Engineering)

January 2015-Present

- Modeling Concurrent Kernel Execution on GPU
- GPU-accelerated speech recognition
- GPU-based deep learning acceleration

June 2013-December 2014

- GPU-accelerated Hidden Markov Model For Speech Recognition
- Parallel IIR on GPU
- Fiber Scattering Simulation on Discovery Cluster

September 2012- Present

- Database Administrator for Puerto Rico Testsite for Exploring Contamination Threats, Superfund Research Program

September 2011-2012

- K-means Clustering for Spectrum Sensing on GPU/CPU

Fall 2008- 2010

- Research on Hypernasality
- Audio Processing Lab
- Digital Signal Processing Lab

Technical Skills

C, OpenCL, CUDA C, Matlab, MPI, OpenMP, PThreads, Shell Script

Awards and Honors

Student Travel Grants: PPoPP 2015

Peer Review

Parallel, Distributed and Network-based Processing (PDP), 2016

Professional Service and Memberships

Student Member of ACM, IEEE

Coursework

PhD:
High Performance Computing, Computer Architecture, Combinatorial Optimization, ST:CE Simulation&Performance Evaluation, ST: Fundamentals of Software Construction, ST: Fundamentals of Computer Networks

Master:
Logic Synth Using FPGA's, DSP Lab, Audio Processing Lab, Speech Signal Processing, Digital Signal Processing, Multimedia Processing, Semiconductors, Bioinformatics, CMOS-VLSI

Publications:

2015

- S. Mukherjee, X. Gong, L. Yu, C. McCardwell, Y. Ukidave, T. Dao, F. N. Paravecino and D. Kaeli, *"Exploring the Features of OpenCL 2.0"*, International Workshop on OpenCL, 2015.

- X. Li, L. Yu, Y. Yao, P. Wang, R. Giese, A. Alshawabkeh, and D. Kaeli, *"Big Data Analysis on Puerto Rico Testsite for Exploring Contamination Threats"*, ALLDATA, 2015.

- Yu, L., Zhang, Y., Gong, X., Roy, N., Makowshi, L., and Kaeli, D., "*High Performance Computing of Fiber Scattering Simulation*", Proceedings of the Eighth Workshop on General Purpose Processing on Graphics Processing Units. ACM, 2015.

- Yu, L., Magrath, J., Pandey, A., Sears, M., and Kaeli, D., "*Speech Recognition on Modern Graphic Processing Units"* ". Proceedings of the 6th Annual Boston Area Architecture Workshop.2015.

- Ukidave Y., Paravecino F.N., Yu, L., Kalra C., Momeni, A., Chen Z., Materise N., Daley, B., and Kaeli, D., "*NUPAR: A Benchmark Suite for Modern GPU Architectures*". Proceedings of the 6th ACM/SPEC international conference on Performance engineering. ACM, 2015.

2014

- Yu, L., Ukidave, Y., and Kaeli, D., "*GPU-accelerated HMM for Speech Recognition*". Proc. of the 43rd Intl. Conf. on Parallel Processing (ICPP-2014), Heterogeneous and Unconventional Cluster Architectures and Applications Workshop (HUCAA'14). IEEE, 2014.

- Zhang, Y., Yu, L., Kaeli, D., and Makowski, L., "*Fast simulation of X-ray diffraction patterns from cellulose fibrils using GPUs*". In Northeast Bioengineering Conference (NEBEC), 2014 40th Annual (pp. 1-2). IEEE.

2008-2011

- Yu L., Barkana B.D., "*Speech Disorders: An Analysis of Hypernasal Speech Using Signal Processing Techniques*", Proceedings of the 2009 ASEE NE American Society for Engineering Education Conference, April 3-4, 2009.

- Yu.L., Barkana B.D., "*Classifying Hypernasality Using the Pitch and Formants*", Proceedings of the 6th International Conference on Information Technology – New Generations, ITNG 2009.