Dr. Ayse YILMAZER

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RESEARCH INTERESTS

Heterogeneous systems, GPUs, parallel computing, parallel architectures, memory systems, memory consistency, compilers analysis techniques and runtime optimizations.

EDUCATION

PhD in Electrical and Computer Engineering January 2014
Northeastern University, Boston, MA

- **Dissertation title**: Micro-architectural support for improving synchronization and efficiency of SIMD execution on GPUs.

MS in Electrical and Computer Engineering May 2007
University of Rhode Island, Kingston, RI

- **Thesis title:** Investigating the Effects of Wrong-path Memory References in Shared-memory Multiprocessors.

B.Sc. in Computer Science and Engineering January 1998
Hacettepe University, Ankara, Turkey

HONORS AND AWARDS

- "Quantifying and Reducing the Effects of Wrong-Path Memory References in Cache-Coherent Multiprocessor Systems" for **IPDPS 2006 Best Paper Award**.

REFEREED CONFERENCE PAPERS

- M. S. Orr, S. Che, A. Yilmazer, B. M. Beckmann, M. D. Hill, D. A. Wood; "Synchronization Using Remote-Scope Promotion"; *International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**);* March 2014.
- Ayse Yilmazer, Zhongliang Chen, and David Kaeli, "Scalar Waving: Improving the Efficiency of SIMD Execution on GPUs," *IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, May 2014.
- Ayse Yilmazer and David Kaeli, "HQL: A Scalable Synchronization Mechanism for GPUs", *International Parallel and Distributed Processing Symposium **(IPDPS)***, May 2013.
- Fatemeh Azmandian, Ayse Yilmazer, Jennifer Dy, Javed Aslam, and David Kaeli, "GPU-Accelerated Local Kernel Density Ratio-Based Future Selection for Outlier Detection", *IEEE International Conference on Data Mining **(ICDM)***, December 2012.
- James Goodman, David Kaeli, Dana Schaa, Ayse Yilmazer, "Accelerating a Hyperspectral Inversion Model for Submerged Marine Ecosystems using High-Performance Computing on Graphical Processor Units", *Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XVI.* Proceedings of the ***SPIE***, Volume 7695, 2010. Edited by Sylvia S. Shen, Paul E. Lewis.
- Resit Sendag, Ayse Yilmazer, Joshua J. Yi, and Augustus K. Uht, "Quantifying and Reducing the Effects of Wrong-Path Memory References in Cache-Coherent Multiprocessor Systems", *International Parallel and Distributed Processing Symposium **(IPDPS)***, April 2006 (**Best Paper Award**).

JOURNAL PAPERS

- Fatemeh Azmandian, Ayse Yilmazer, Jennifer G. Dy, Javed A. Aslam, David R. Kaeli, "Harnessing the Power of GPUs to Speed Up Feature Selection for Outlier Detection", *Journal of Computer Science and Technology **(JCST)***, 2014, Vol. 29 (3): 408-422.
- Resit Sendag, Ayse Yilmazer, Joshua J. Yi, and Augustus K. Uht, "The Impact of Wrong-Path Memory References in Cache-Coherent Multiprocessor Systems", *Journal of Parallel and Distributed Computing **(JPDC)**, Special Issue on Best Papers in IEEE International Parallel and Distributed Processing Symposium*, vol. 67, no. 12, pp. 1256-1269, Dec., 2007.

WORKSHOP PAPERS

- Ayse Yilmazer, Resit Sendag, Joshua J. Yi, and Augustus K. Uht, "Investigating the Effects of Wrong-Path Memory References in Shared-Memory Multiprocessor Systems", *Boston Area Architecture Workshop **(BARC)***, February 2006.
- Ayse Yilmazer, Resit Sendag, and Joshua J. Yi, "Quantifying and Comparing the Impact of Wrong-Path Memory References in Multiple-CMP Systems," **(*CMP-MSI*)***: Workshop on Chip Multiprocessor Memory Systems and Interconnects,* in conjunction with the 13th Annual International Conference on High-Performance Architecture (HPCA-13), February 2007.

PATENTS

- Wrong-path Aware Replacement Policy, with Resit Sendag and Augustus K. Uht (US Patent #7,721,048), Issued in May 2010.
- Remote Synchronization Operations in "SC for HRF" Memory Models, with Marc S. Orr, Shuai Che, Brad M. Beckmann, Mark D. Hill, David A. Wood. (Filed in 2014)