Publications

2018


2017

- DAMP: A Distributed Actor Model for Mobile Platforms. Arghya Chatterjee, Srdjan Milakovic, Bing Xue, Zoran Budimlic, Vivek Sarkar. 14th International Conference on Managed Languages & Runtimes (ManLang’17), September 2017. [slides]

2016

• Fine-grained parallelism in probabilistic parsing with Habanero Java. Matthew Francis-Landau (Johns Hopkins University), Bing Xue (Rice University), Jason Eisner (Johns Hopkins University) , and Vivek Sarkar (Rice University). In Proceedings of the Sixth Workshop on Irregular Applications: Architectures and Algorithms (IA3, co-located with SC16), November 2016 [slides].

• Exploring Compiler Optimization Opportunities for the OpenMP 4.x Accelerator Model on a POWER8+GPU Platform. Akihiro Hayashi, Jun Shirako, Ettore Tiotto, Robert Ho, Vivek Sarkar. Third Workshop on Accelerator Programming Using Directives (WACCPD, co-located with SC16), November 2016.

• Optimized Distributed Work-Stealing. Vivek Kumar, Karthik Murthy, Vivek Sarkar and Yili Zheng. 6th workshop on Irregular Applications: Architectures and Algorithms (IA3’3), ACM, November 2016 [slides].


• An Extended Polyhedral Model for SPMD Programs and its use in Static Data Race Detection. Prasanth Chataratasi, Jun Shirako, Martin Kong, Vivek Sarkar. The 29th International Workshop on Languages and Compilers for Parallel Computing (LCPC), September 2016 [slides].


• Dynamic Determinacy Race Detection for Task Parallelism with Futures. Rishi Surendran and Vivek Sarkar. 16th International Conference on Runtime Verification (RV’16), September 2016.

• Declarative Tuning for Locality in Parallel Programs. Sanjay Chatterjee, Nick Vrvilo, Zoran Budimlic, Kathleen Knobe, Vivek Sarkar. The 45th International Conference on Parallel Processing (ICPP-2016), August 2016. (slides)


• Static Data Race Detection for SPMD Programs via an Extended Polyhedral Representation. Pr asanth Chatarasi, Jun Shirako, Vivek Sarkar. 6th International Workshop on Polyhedral Compilation Techniques (IMPACT 2016), January 2016 [slides].

2015


• LLVM-based Communication Optimizations for PGAS Programs. Akihiro Hayashi, Jisheng Zhao, Michael Ferguson, Vivek Sarkar. The 2nd Workshop on the LLVM Compiler Infrastructure in HPC (LLVM, co-located with SC15), November, 2015.


• Extending Polyhedral Model for Analysis and Transformations of OpenMP Programs. Prasanth Chatarasi, and Vivek Sarkar. PACT ACM Student Research Competition, October 2015. [accepted as poster with accompanying extended abstract][poster].

• Polyhedral Optimizations of Explicitly Parallel Programs. Prasanth Chatarasi, Jun Shirako, and Vivek Sarkar. 24th International Conference on Parallel Architectures and Compilation Techniques (PACT), October 2015. One of four papers selected for Best Paper session [slides].

• Compiling and Optimizing Java 8 Programs for GPU Execution, Kazuaki Ishizaki, Akihiro Hayashi, Gita Koblents, Vivek Sarkar. 24th International Conference on Parallel Architectures and Compilation Techniques (PACT), October 2015.


• Polyhedral Optimizations for a Data-Flow Graph Language. Alina Sbirlea, Jun Shirako, Louis-Noel Pouchet, Vivek Sarkar. The 28th International Workshop on Languages and Compilers for Parallel Computing (LCPC), September 2015.


• A Composable Deadlock-free Approach to Object-based Isolation. Shams Imam, Jisheng Zhao, Vivek Sarkar. 21st International European Conference on Parallel and Distributed Computing (Euro-Par’15), August 2015. [paper]


• Data Layout Optimization for Portable Performance. Kamal Sharma, Ian Karlin, Jeff Keasler, James McGraw, Vivek Sarkar. 21st International European Conference on Parallel and Distributed Computing (Euro-Par’15), August 2015. [paper]

• Load Balancing Prioritized Tasks via Work-Stealing. Shams Imam, Vivek Sarkar. 21st International European Conference on Parallel and Distributed Computing (Euro-Par’15), August 2015. [paper]


• Polyhedral Transformations of Explicitly Parallel Programs. Prasanth Chatarasi, Jun Shirako, Vivek Sarkar. 5th International Workshop on Polyhedral Compilation Techniques (IMPACT 2015), January 2015. [slides]

• HabaneroUPC++, a Compiler-free PGAS Library, Vivek Kumar, Yili Zheng, Vincent Cave, Zoran Budimlic, Vivek Sarkar. 8th International Conference on Partitioned Global Address Space Programming Models (PGAS14), October 2014. [slides]

• FU-Vis: A Tool for Visualizing, Debugging and Optimizing Parallel Programs, Peter Elmers, Hongyu Li, Shams Imam, Vivek Sarkar. SPLASH 2014 Poster Session, October 2014. [accepted as poster with accompanying extended abstract]. [paper]


• Cooperative Scheduling of Parallel Tasks with General Synchronization Patterns. Shams Imam, Vivek Sarkar. 28th European Conference on Object-Oriented Programming (ECOOP), July 2014. [paper, slides]


• LLVM Optimizations for PGAS Programs -Case Study: LLVM Wide Optimization in Chapel-. Akhiro Hayashi, Rishi Surendran, Jisheng Zhao, Michael Ferguson, Vivek Sarkar. The 1st Chapel Implementers and Users Workshop (co-located with IPDPS2014), May 2014.


2013


• Speculative Execution of Parallel Programs with Precise Exception Semantics on GPUs. Akhiro Hayashi, Max Grossman, Jisheng Zhao, Jun Shirako, Vivek Sarkar. The 26th International Workshop on Languages and Compilers for Parallel Computing (LCPC), September 2013.

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• DrHJ --- a lightweight pedagogic IDE for Habanero Java. Jarred Payne, Vincent Cave,  
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