**REFEREED PRESENTATIONS AND PUBLICATIONS**

Unofficial versions of many of my parallel papers are available at the web site <http://www.cs.kent.edu/~parallel/papers/>

**Publications by Johnnie W. Baker Involving Associative Computing**

1. Alfred Shaker, Johnnie Baker, Gokarna Sharma, and Mike Yuan, Performance Comparison of NVIDIA Accelerators with SIMD, Associative, and Multi-core Processors for Air Traffic Management, 47th International Conference on Parallel Processing Companion, SRMPDS,, August 2018, Eugene, OR, USA, 10 pages. https://doi.org/10.1145/3229710.3229757
2. Mike Yuan, Johnnie W. Baker, Will C. Meilander, Comparisons of Air Traffic Control Implementations on an Associative Processor with a MIMD and Consequences for Parallel Computing, Journal of Parallel and Distributed Computing , Elsevier Publisher, Volume 73, pgs 256-272, February 2013
3. Mike Yuan, Johnnie Baker, Will Meilander, and Kevin Shaffer, “*Scalable and Efficient Associative Processor Solution to Guarantee Real-Time Requirements for Air Traffic Control Systems*”, Large Scale Parallel Processing IEEE Workshop at the International Parallel and Distributed Computing Symposium (IPDPS2012), published on IPDPS-2012 CDROM and in the IEEE Digital Library with other IPDPS-2012 publications, Shanghai, 8 pages, May 2012.
4. Jerry Trahan, Mingxian Jin, Wittaya Chantamas, and Johnnie Baker, “*Relating the Power of the Multiple Associative Computing Model (MASC) to that of Reconfigurable Bus-Based Models*”, Journal of Parallel & Distributed Computing 70(2010), pgs 458-466, Elsevier Publishers, Available online at ScienceDirect: [www.sciencedirect.com](http://www.sciencedirect.com), May 25,2010.
5. Mike Yuan, Johnnie Baker, Frank Drews, Lev Neiman, and Will Meilander, “*An Efficient Associative Processor Solution to an Air Traffic Control Problem*”, Large Scale Parallel Processing IEEE Workshop at the International Parallel and Distributed Computing Symposium (IPDPS2010), published on IPDPS-2010 CDROM and in the IEEE Digital Library with other IPDPS-2010 publications, 8 pages, April 2010.
6. Wittaya Chantamas and Johnnie Baker, “*A Software Implementation of a Cycle Precision Simulator of a Multiple Associative Model”*, Proc. of the IASTED PDCS 2010, Marina del Rey, CA, November 2010, (724), 8 pages, Informatics 2010.
7. Mike Yuan, Johnnie Baker, Frank Drews, and Will Meilander, “A*n Efficient Implementation of Air Traffic Control using the ClearSpeed CSX620 System”,* Parallel and Distributed Computing Systems (PDCS 2009), Cambridge, 353-360, November 2009
8. Shannon Steinfadt and Johnnie. W. Baker, “*SWAMP: Smith-Waterman using Associative Massive Parallelism*”, IEEE Workshop on Parallel and Distributed Scientific and Engineering Computing, 2008 International Parallel and Distributed Processing Symposium (IPDPS) at Miami*,* 8 pages, published on CD, April 14-18, 2008.
9. Mingxian Jin and Johnnie W. Baker “*Two Graph Algorithms on an Associative Computing Model”*, 2007 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA’07), Las Vegas, 7 pages, June 25-28, 2007.
10. Shannon Steinfadt, Michael Scherger, and Johnnie W. Baker, “*A Local Sequence Alignment Algorithm Using an Associative Model of Parallel Computation*”, Proc. of IASTED Computational and Systems Biology (CASB 2006)*,* Dallas, pp. 38-43, Nov. 13-14, 2006.
11. Wittaya Chantamas, Johnnie Baker, and Michael Scherger, “*An Extension of the ASC Language Compiler to Support Multiple Instruction Streams in the MASC Model using the Manager-Worker Paradigm,*”, Proc. of the 2006 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 2006), pp. 521-527, June 2006.
12. Stewart Reddaway, Will Meilander, Johnnie Baker, and Justin Kidman, “*Overview of Air Traffic Control Using an SIMD COTS System*”, International Parallel and Distributed Processing Symposium, 9 pages, Published on CD, April 2005
13. Wittaya Chantamas and Johnnie Baker, “*A Multiple Associative Model to Support Branches in Data Parallel Applications using the Manager-Worker Paradigm*”, Proc. of the 19th International Parallel and Distributed Processing Symposium (IEEE WMPP Workshop), pp. 266-273, April 2005.
14. Michael Scherger, Johnnie Baker, and Jerry Potter, "*Multiple Instruction Stream Control for an Associative Model of Parallel Computation", Proc. of the 17th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing),* abstract on page 266, full text on CDROM, presented at Nice, France, April 2003.
15. Michael Scherger, Johnnie Baker, and Jerry Potter, "*An Object Oriented Framework for and Associative Model of Parallel Computation*", Proc. of the 17th International Parallel and Distributed Processing Symposium (Workshop in Advances in Parallel and Distributed Computational Models), abstract on page 166 , full text on CDROM, presented at Nice, France, April 2003.
16. Will Meilander, Johnnie Baker, and Mingxian Jin, "*Importance of SIMD Computation Reconsidered*", Proc. of the 17th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing), abstract on page 266, full text on CDROM , presented at Nice, France, April 2003.
17. Will C. Meilander, Mingxian Jin, and Johnnie W. Baker, "*Tractable Real-Time Air Traffic Control Automation*", Proc. of the 14th IASTED International Conference on Parallel and Distributed Computing and Systems, pg 483-488, Cambridge, MA, November 2002.
18. Will Meilander, Johnnie Baker, and Mingxian Jin, "*Predictable Real-Time Scheduling for Air Traffic Control*", Proc. of the 15th International Conference of Systems Engineering, pages 533-539, presented at Las Vegas, NV, August 2002.
19. Michael Scherger, Jerry Potter, and Johnnie W. Baker, "*On Using the UML to Describe the BSP Model of Parallel Computation*", in Proc. of the 2002 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'2002), volume II, pages 578-583, presented Las Vegas, NV, June 2002.
20. Mingxian Jin, Johnnie W. Baker, and Will C. Meilander, "*The Power of SIMDs vs. MIMDs in Real-Time Scheduling*", , in Proc. of the 16th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing*)*, abstract on page 248, full text on CDROM, presented Ft. Lauderdale, FL, April 2002.
21. Maher M. Atwah and Johnnie W. Baker "*An Associative Static and Dynamic Convex Hull Algorithm*", Proc. of the 16th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing), abstract on page 249, full text on CDROM, presented Ft. Lauderdale, FL, April 2002.
22. Mingxian Jin, Johnnie Baker, and Kenneth Batcher, "*Timings for Associative Operations on the MASC Model*", Proc. of the 15th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing), abstract on page 193, full text on CDROM, presented San Francisco, CA, April 2001.
23. Will C. Meilander, Johnnie W. Baker, and Jerry Potter, "*Predictability for Real-Time Command and Control*", Proc. of the 15th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing), abstract on page 194, full text on CDROM, presented San Francisco, CA, April 2001.
24. Maher M. Atwah and Johnnie W. Baker, "*An Associative Implementation of a Parallel Convex Hull Algorithm*", Proc. of the 15th International Parallel and Distributed Processing Symposium (IEEE Workshop on Massively Parallel Processing), full text on CDROM, presented San Francisco, CA, April 2001.
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26. Johnnie W. Baker and Mingxian Jin, "*Simulations of Enhanced Meshes with MASC, a MSIMD Model*", Proc. of the 11th IASTED International Conference on Parallel and Distributed Computing and Systems*,* pages 511-516, presented at Cambridge, MA, November, 1999.
27. Johnnie W. Baker and Mingxian Jin, "*Simulations Between Enhanced Meshes and the Multiple Associative Computing (MASC) Model*", Proc. of the 1999 Midwest Workshop on Parallel Processing (MWPP'99), presented at Kent, OH, August 1999.
28. Will C. Meilander, Jerry L. Potter, Kathy J. Liszka, and Johnnie W. Baker, "*Real-Time Scheduling in Command and Control*", in Proc. of the 1999 Midwest Workshop on Parallel Processing, (MWPP'99), presented at Kent, OH, August 1999.
29. Nael B. Abu-Ghazaleh, Philip A. Wilsey, Jerry Potter, Robert Walker, and Johnnie Baker, "*Flexible Parallel Processing in Memory: Architecture + Programming Model* ", Proc. of the Third Petaflop Workshop, held in conjunction with Frontiers on Massively Parallel Computing, presented at Annapolis, MD, February 1999.
30. Maher M. Atwah and Johnnie W. Baker, "*An Associative Dynamic Convex Hull Algorithm*", Proc. of the Tenth IASTED International Conference on Parallel and Distributed Computing and Systems, pages 250-254, presented at Las Vegas, NV, October 1998.
31. Darrell Ulm and Johnnie Baker, "*Simulating PRAM with a MSIMD Model (ASC)*", Proc. of the International Conference on Parallel Processing, pages 3-10, presented at Minneapolis, MN, August, 1998.
32. Will C. Meilander and Johnnie W. Baker, "*ATC Architecture Computers –Yesterday, Today, Tomorrow*", 43rd Annual Air Traffic Control Association Fall Conference Proceedings, pages 91-95, 1998.
33. Mary Esenwein and Johnnie W. Baker, "*VLCD String Matching for Associative Computing and Multiple Broadcast Mesh*", Proc. of the IASTED International Conference on Parallel and Distributed Computing and Systems, pages 69-74, presented at George Washington University, October, 1997.
34. Jerry Potter, Johnnie Baker, Stephen Scott, Arvind Bansal, Chokchai Leangsuksun, and Chandra Asthagiri, "*ASC: An Associative Computing Paradigm, Associative Processing and Processors*", Associative Processing and Processors, *editors*: A. Krikelei and C.C.Weems, IEEE Computer Society Press, pages 188-194, 1997.
35. Maher M. Atwah, Johnnie W. Baker, and Selim Akl, "*An Associative Implementation of Classical Convex Hull Algorithm*", in Proc. of the Eighth IASTED International Conference on Parallel and Distributed Computing Systems*,*  pages 435-438, presented George Washington University, October, 1996.
36. "Virtual Parallelism by Self Simulation of the Multiple Instruction Stream Associative Model", Darrell Ulm and Johnnie W. Baker, in *Proc. of the International Conference on Parallel and Distributed Processing Techniques and Applications*, pages 1421-1430, presented Sunnyvale, CA, August, 1996.
37. Darrell Ulm and Johnnie W. Baker, "*Solving a 2D Knapsack Problem on an Associative Computer Augmented with a Linear Network*", *Proc. of the International Conference on Parallel and Distributed Processing Techniques and Applications*, pages 29-32, presented Sunnyvale, CA, August, 1996.
38. Maher M. Atwah, Johnnie W. Baker, and Selim Akl, "*An Associative Implementation of Graham's Convex Hull Algorithm*", *Proc. of the Seventh IASTED International Conference on Parallel and Distributed Computing and Systems*, pages 273-276, presented at George Mason University, October 1995.
39. Jerry Potter, Johnnie Baker, Stephen Scott, Arvind Bansal, Chokchai Leangsuksun, and Chandra Asthagiri, "*ASC: An Associative Computing Paradigm*", Special Issue on Associative Processing, *IEEE Computer*, 27(11), pages 19-25, November 1994.

**NOTE:**  The highlighted publications above are journal papers.

**Dissertations Supervised by Johnnie W. Baker Involving Associative Computing**

1. Mike Yuan - Dissertation title: *A SIMD Approach to Large-Scale Real-Time Systems Air Traffic Control Using an Associative Processor and Consequences for Parallel Computing*, Started around Fall 2008, defended candidacy on Dec. 16, 2009, defended his dissertation on August 14, 2012, graduated in Fall 2012
2. Weiguo Fan - Dissertation title*: Using Molecular Similarity Analysis for Structure-Activity Relationship Studies* (191 pp), co-directed with Chun-che Tsai in Chemistry Dept. Started around Fall 2000 and defended candidacy on Sept 6, 2002. Research successfully defended on March 23, 2010, but required to revise dissertation to a format appropriate for a journal with greater depth. Graduated in Fall 2012.
3. Shannon Steinfadt – Dissertation title: *Smith-Waterman Sequence Alignment For Massively Parallel High-Performance Computing Architectures*. Started about Fall 2002. Defended her candidacy on December 15, 2004. Defended on March 18, 2009, Graduated in Spring 2009
4. Wittaya Chantamas – Dissertation title: *A Multiple Associative Model to Support Branches in Data Parallel Applications using the Manager-Worker Paradigm*, Defended his dissertation on Oct 26, 2009, Graduated in Fall 2009.
5. Michael Scherger – Dissertation: *An Object Model Framework, Runtime Environment Support, and Database System Software for a Multiple Instruction Stream Associative Model of Parallel Computation*, Co-advised with Jerry Potter, Successfully defended on October 24, 2005, graduated Fall 2005.
6. Mingxian Jin – Dissertation: *Exploring the Power of the MASC Model by Simulations and Real-time Applications",* graduated December 2004
7. Maher Atwah – Dissertation: *Parallel Computation of the Static and Dynamic Convex Hull*, defended successfully April, 2001, Graduated Spring 2001.
8. Darrell Ulm - Dissertation: *The Power of the ASC Associative Computing Model Through Simulations PRAM and Virtual Parallelism*, defended successfully December, 1995.

**Dissertations Sponsored by Other KSU Faculty Involving Associative Computing (J. Baker was a Member of the Defense Committee):**

1. Sherenez Al-Haj Baddar, *Finding Better Sorting Networks*, Dept of Computer Science, Advisor: Kenneth Batcher, April 2, 2009.
2. Stephen L. Scott, *A Distributed Heterogeneous Computing Environment*, Advisor Jerry Potter, 1996.
3. Koung Goo Lee, *Routing Algorithms on Shuffle Exchange Networks*, Advisor: Kenneth Batcher, 1995.
4. Jae-Dong Lee, *Minimizing Communication in the Bitonic Sort*, Advisor: Kenneth Batcher, 1994
5. Chandra Asthagiri., *An Associative Parallel Compiler for an Associative Computing Language*, Advisor: Jerry Potter, 1991.

**Thesis Sponsored by Johnnie Baker Involving Associative Computing:**

1. Tristan Cuevas - Thesis Topics: *Comparing the Running Times for a Smith Waterman Algorithm on a Multicore and a ClearSpeed Accelerator*. Started Summer 2013, thesis topic approval form submitted in June 2013.
2. Amrish Lal, *A Database Query Engine for XML Documents Using XQL Query Language*, (Co-sponsored with Will Meilander), May 1999.
3. Kung-Ming Liu, *Composition of Kalman and Heuristic Tracking Algorithms for Air Traffic Control*, May, 1999. (Co-sponsored with Will Meilander).
4. Lu Qian, *Complexity Analysis of an Air Traffic Control System Using an Associative Processor*, (Co-sponsored with Will Meilander), December, 1997..
5. Mary Esenwein, *String Matching Algorithms for an Associative Computer*, 1995.
6. Maher Atwah, *Computing the Convex Hull on the Associative Model*, July, 1994.
7. Dale Haverstock, *An Assembler for the STARAN Parallel Computer*, August, 1994. (Co-sponsored with J. Potter; Directed while Potter was on extended leave for about 2 years.).
8. Jon Wiebrecht, *Parallel SIMD Algorithms and Implementations for the Traveling Salesperson Problem and Assignment Problem*, May, 1992.
9. Julia Liem Lee, *Developing Parallel SIMD Algorithms for the Traveling Salesman Problem*, November, 1989, (Co-sponsored with O. Slotterbeck).
10. Sirirat Viseshakul, *Developing and Testing a Software System to Track and Monitor Air Traffic*, October, 1989, (Co-sponsored with W. Meilander).
11. Kenneth Atchinson, *Development of a Portable Parallel Processor Using SIMD Architecture*, August, 1989.
12. John Michalakes, *STARAN-VAX Interface Under Berkeley Unix, 4.3 BSD*, November, 1988.

**Thesis Involving Associative Computing Sponsored by Other KSU Faculty Members: (J. Baker was a member of the defense committee):**

1. Ping Xu, *Implementing Three VLDC String Matching Algorithms on an FPGA-Based Associative SIMD Processor,* Computer Science Dept, Advisor was Robert Walker, May 2006.
2. Sabegh Singh Virdi, *Solving the Longest Common Subsequence (LCS) Problem using the Associative ASC Processor with Reconfigurable 2D Mesh*, Computer Science Dept., Advisor: Robert Walker, March 2006.
3. Jalpesh Chitalia, *Efficient Representation of Data Structures on Associative Processors,* Computer Science Dept., Advisor: Robert Walker, Sept. 2004.
4. Kevin Schaffer, *Developing a Practical Instruction Set for a RISC-based Associative Processor*, Advisor: Robert Walker, April 2003.
5. Meiduo Wu, *Implementing the Associative Array for an Associative Processor on FPGA’s,* Advisor: Robert Walker, April 25, 2002.
6. Yanping Wang, *Inplementing the Single Instruction Stream Associative Computing Model on FPGAs: the Architecture, Back, and Compiler*, Advisor: Robert Walker, 2001
7. Abel Salem, *Semantic Operating Systems*, Advisor: Jerry Potter, 1998.
8. Robert Smith, Jr., *A Methodology and Visual Basic Shell for Process Problem Advising Expert Systems*, Advisor: Jerry Potter, 1997
9. Dan Stuckey, Advisor: Jerry Potter. 1997. **Unknown Title - Drop if title not found**
10. Padmanabhan Krishnan, *Main* *Memory DBMS in SIMD Parallel Machines with RAID based I/O*, Advisor: Will Meilander, 1996.