

# Curriculum Vitae

## Justin M. Wozniak

US Citizen

### *Office Address:*

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### *Research Interests:*

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Parallel & distributed scientific computing; models for computer systems.

### *Education:*

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<b>Ph.D., Computer Science &amp; Engineering</b> University of Notre Dame Adviser: Dr. Aaron Striegel	<b>2004-2008</b>
<b>MMath, Computer Science</b> University of Waterloo Adviser: Dr. George Labahn	<b>2001-2003</b>
<b>B.Sc., Mathematics and Computer Science</b> University of Illinois at Urbana-Champaign Minors: Chemistry, Latin	<b>1996-2000</b>

### *Awards:*

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Arthur J. Schmitt Presidential Fellowship	2004
NSF Graduate Research Fellowship Honorable Mention	2000

### *Book Chapters:*

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1. J. M. Wozniak, P. Brenner, S. Chatterjee, D. Thain, A. Striegel, and J. Izaguirre. **GEMS: User Control for Cooperative Scientific Repositories.**  
*To appear in: Computational and Data Grids: Principles, Designs, and Applications, 2011.*
2. J. M. Wozniak and A. Striegel. **Investigating Deadline-Driven Metascheduling Policy via Simulation with East.** In: Quantitative Quality of Service for Grid Computing: Applications for Heterogeneity, Large-Scale Distribution and Dynamic Environments, 2009.

### *Journal Papers:*

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1. I. Foster, M. Hategan, J. M. Wozniak, M. Wilde, and B. Clifford. **Swift: A language for distributed parallel scripting.**  
*To appear in: J. Parallel Computing, 2011.*
2. P. Brenner, J. M. Wozniak, D. Thain, A. Striegel, J. W. Peng, and J. A. Izaguirre. **Biomolecular committor probability calculation enabled by processing in network storage.** *J. Parallel Computing, 34(11), 2008.*
3. J. M. Wozniak, P. Brenner, D. Thain, A. Striegel, and J. A. Izaguirre. **Making the best of a bad situation: Prioritized storage management in GEMS.** *Future Generation Computer Systems, 24(1), 2008.*
4. J. A. Izaguirre, D. P. Catarello, J. M. Wozniak, and Robert D. Skeel. **Langevin stabilization of molecular dynamics.**  
*J. Chemical Physics, 114(5), 2001.*

### *Conference Papers:*

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1. J. M. Wozniak, S. W. Son, and R. Ross. **Distributed object storage rebuild analysis via simulation with GOBS.** Proc. Workshop on Fault-Tolerance for HPC at Extreme Scale at the International Conference on Dependable Systems and Networks, IEEE Computer Society, 2010.
2. J. M. Wozniak and M. Wilde. **Case studies in storage access by loosely coupled petascale applications.** Proc. Petascale Data Storage Workshop at SC'09, 2009.
3. J. M. Wozniak, S. Chatterjee, P. Brenner, D. Thain, A. Striegel, and J. A. Izaguirre. **Pathways into large parameter search spaces: Experiences with molecular hyperdynamics.** Proc. UK e-Science All Hands Meeting, Workshop 6, 2008.
4. J. M. Wozniak. **Overdrive controllers for distributed scientific computation.** Proc. TCSC Doctoral Symposium at CCGrid, IEEE Computer Society, 2007.

5. P. Brenner, J. M. Wozniak, D. Thain, A. Striegel, J. W. Peng, and J. A. Izaguirre. **Biomolecular path sampling enabled by processing in network storage.** Proc. Workshop on High Performance Computational Biology, IEEE Computer Society, 2007.
6. J. M. Wozniak, Y. Jiang and A. Striegel. **Effects of low-quality computation time estimates in policed schedulers.** Proc. Annual Simulation Symposium, IEEE Computer Society, 2007.
7. J. M. Wozniak, P. Brenner, D. Thain, A. Striegel, and J. Izaguirre. **Access control for a replica management database.** Proc. Workshop on Storage Security and Survivability, ACM, 2006.
8. J. M. Wozniak, P. Brenner, D. Thain, A. Striegel, and J. Izaguirre. **Applying feedback control to a replica management system.** Proc. Southeastern Symposium on System Theory, IEEE Control Systems Society, 2006.
9. D. Thain, S. Klous, J. Wozniak, P. Brenner, A. Striegel, and J. Izaguirre. **Separating abstractions from resources in a tactical storage system.** Proc. Supercomputing, IEEE Computer Society, 2005.
10. J. M. Wozniak, Paul Brenner, D. Thain, A. Striegel, and J. A. Izaguirre. **Generosity and gluttony in GEMS: Grid Enabled Molecular Simulation.** Proc. High Performance Distributed Computing, IEEE Computer Society, 2005.
11. J. M. Wozniak, A. Striegel, D. Salyers and J. A. Izaguirre. **GIPSE: Streamlining the management of simulation on the grid.** Proc. Annual Simulation Symposium, IEEE Computer Society, 2005.

### *Theses:*

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- J. M. Wozniak. **Overdrive controllers for distributed scientific computation.** Ph.D. Thesis, University of Notre Dame, 2008.
- J. M. Wozniak. **Control system theory in Maple.** Master's Thesis, University of Waterloo, 2003.

### *Unpublished Reports:*

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1. D. S. Katz, T. G. Armstrong, Z. Zhang, M. Wilde, and J. M. Wozniak. **Many task computing and Blue Waters.** 2010. (Report regarding feasibility of many-task computing on the Blue Waters system.)
2. J. M. Wozniak, B. Jacobs, R. Latham, S. Lang, S. W. Son, and R. Ross. **C-MPI: A DHT implementation for grid and HPC environments.** Preprint ANL/MCS-P1746-0410, 2010.
3. J. M. Wozniak. **Message passing in Maple.** Technical report CS-2004-02, School of Computer Science, University of Waterloo, 2003.

### *Teaching Experience:*

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- **Numerical Methods (CSE 40713/60713), Fall 2006, University of Notre Dame**  
Revived this course in the department. Produced original syllabus and employed new texts. Lectured and led lab sessions. Wrote reusable homework problem sets and examinations.
- **Numerics courses (various), 2001-2003, University of Waterloo**  
Assisted five semesters of numerics courses.

### *Research Work Experience:*

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- **Postdoctoral Appointee, 2008-present**  
Radix I/O Group, MCS Division  
Argonne National Laboratory  
Supervisor: Dr. Rob Ross
- **Research Staff, 2009-present**  
Computation Institute  
University of Chicago
- **Research Assistant, 1998-2000**  
Theoretical Biophysics Group, Beckman Institute  
University of Illinois at Urbana-Champaign  
Supervisor: Dr. Robert Skeel
- **Research Assistant, Summer 1999**  
Mathematics and Computer Science Division  
Argonne National Laboratory  
Supervisor: Dr. Mike Minkoff

### *Reviewer Experience:*

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- Peer review panelist, Dept. of Energy Advanced Scientific Computing Research Small Business Innovation Research program.
- Program Committee member for Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS) at SC'10.
- Reviewed papers for ICDCS, CCGrid, J. Parallel and Distributed Computing, and J. Parallel Computing.

### *Leadership Experience:*

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- Six years of non-profit Board of Directors experience in three different organizations.
- Served as graduate student representative on the Faculty Senate at ND and UW.
- Served as Executive Committee member, National Association of Graduate and Professional Students (NAGPS) (2 terms).
- Chaired and coordinated NAGPS Midwest Regional Conference 2006.
- Served as Notre Dame Graduate Student Union chair of External Affairs (2 terms).
- Provisional Member, National Association of Parliamentarians.
- Elected twice to the office of Vice President of Operations for the Graduate Student Association at UW. Managed a student-run restaurant, and wrote and maintained two \$400,000 budgets.
- Served as Director of Project Vote at UIUC, a non-partisan voter registration and information organization.

### *Technical Experience:*

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- Substantial experience with GNU C tool chain on Linux-like systems and clusters. Used POSIX, MPI, and other APIs to write parallel programs.
- Substantial experience with Java on various systems. Used JDBC and SQL, JAXP, Threads, and other APIs in complex applications.
- Have used many development tools including Eclipse, valgrind, ddd, Dmalloc, splint, and others.
- Research experience using mathematical software including Maple, Matlab, Octave, PETSc, and other tools.