Paul R. Brenner, PhD, PE

Work: 111 Information Technology Center, Notre Dame IN 46556 Email: paul.r.brenner@nd.edu

PROFESSIONAL PREPARATION

University of Notre Dame, Notre Dame, IN 1998
B.S. Civil Engineering – Cum Laude

The Ohio State University, Columbus, OH 2000
M.S. Materials Science and Engineering
Field of Research: Intermetallic Mechanical Behavior and Dislocation Mechanisms

University of Notre Dame, Notre Dame, IN 2007
Ph.D. Computer Science and Engineering
Field of Research: Computational Biophysics and High Throughput Distributed Systems

APPOINTMENTS: RESEARCH, ENGINEERING, AND MANAGEMENT

Center for Research Computing, The University of Notre Dame, Indiana 2007 - Present
Associate Director, High Performance Computing
Research Assistant Professor, Department of Computer Science and Engineering
• Advance computation based research through HPC system design, deployment, operation, and support
• Conduct HPC research and grant development to grow computational infrastructure and capabilities
• HPC user training: hands-on instruction, collaborative documentation, & operational communications

U.S. Air Force Reserves, Engineering Officer (Traditional Reservist) 1998 - Present

434th Air Wing Civil Engineering Squadron, Grissom ARB, Indiana *2009 - Present*
Engineering Squadron Commander
• Command 145 USAF engineers and technicians to meet operational engineering tasks

U.S. DSRC High Performance Computing Center, Wright Patterson AFB, Ohio *2005 - 2009*
HPC Infrastructure Planning and Design Consultant
• Research and evaluate developing HPC technologies with multi megawatt infrastructure impacts

445th Air Wing Civil Engineering Squadron, Wright Patterson AFB, Ohio *1998 - 2009*
Engineering, Mobility, & Training Officer
• Directed analysis, design, & execution; OIC of Operations ($85 million) Bagram, Afghanistan

McGill AirClean Corporation, Columbus, Ohio 2000 - 2003
Manager Civil/Structural Engineering
• Managed structural engineers, designers, and manufacturing planners for efficient project completion

APPOINTMENTS: TEACHING

University of Notre Dame, Notre Dame, IN 2003 – Present
Research Assistant Professor (2007 – Present), Graduate Research Assistant (2003 – 2007)
• Instructor – Data Structures, Undergraduate Research, CSE Service Learning (CBR)

Columbus State Community College, Columbus, Ohio 2001 - 2003
Adjunct Faculty – Core Physics Sequence

RECENT RELATED PUBLICATIONS

P. Brenner, D. Thain, A. Buccellato, D. Go
"Environmental Opportunistic Computing," in Handbook of Energy-Aware and Green Computing (ed. by I. Ahmad and S. Ranka), 2011

R. Jansen and P. Brenner
Energy Efficient Virtual Machine Allocation in the Cloud: An Analysis of Cloud Allocation Policies, 2nd IEEE International Green Computing Conference, 2011

A. Buccellato, P. Brenner, D. Go, R. Jansen, E. Ward
Environmentally Opportunistic Computing: Computation as Catalyst for Sustainable Design
ASHRAE Winter Conference, 2011

M. Witkowski, P. Brenner, R. Jansen, D. Go, E. Ward
Enabling Sustainable Clouds via Environmentally Opportunistic Computing
2nd IEEE International Conference on Cloud Computing Technology and Science, 2010

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
Journal of Parallel Computing, 2008

SIGNIFICANT PUBLICATIONS

Morcos F, Chatterjee S, McClendon CL, Brenner PR, Lopez-Rendon R, et al. 2010 Modeling Conformational Ensembles of Slow Functional Motions in Pin1-WW. PLoS Computation Biology 6(12): e1001015. Doi:10.1371/journal.pcbi.1001015

P. Brenner, R. Jansen, D. Go, D. Thain
Environmentally Opportunistic Computing: Transforming the Data Center for Economic and Environmental Sustainability. 1st IEEE International Green Computing Conference, 2010

M. Lammie, P. Brenner, D. Thain
Scheduling Grid Workloads on Multicore Clusters to Minimize Energy and Maximize Performance
10th IEEE/ACM International Conference on Grid Computing (Grid) 2009

P. Brenner, D. Thain, D. Latimer
Grid Heating Clusters: Transforming Cooling Constraints into Thermal Benefits
Uptime Institute – IT Lean, Clean, & Green Symposium, Green Enterprise IT Awardee, 2009

P. Brenner, C. R. Sweet, D. VonHandorf, and J. A. Izaguirre
Accelerating the Replica Exchange Method Through an Efficient All-pairs Exchange
Journal of Chemical Physics, 2007

RECENT SYNERGISTIC ACTIVITIES AND AWARDS

European Seventh Framework Programme Project "CoolEmAll" Advisory Board Member	2011
"Student Engineering Reaching Out" Undergraduate Course Instructor and Team Mentor	2011
Uptime Institute – IT Lean, Clean, & Green Symposium, Green Enterprise IT Awardee	2009
• Paper: "Grid Heating Clusters: Transforming Cooling Constraints into Thermal Benefits"	
Notre Dame Rev. William A. Toohey Award for Service and Social Justice	2008
Notre Dame CSC Ganey Research Grant Recipient	2006

CURRENT COLLABORATORS

• University of Notre Dame: K. Barry, A. Buccellato, S. Chatterjee, D. Go, M. Hildreth, J. Izaguirre, R. Jansen, J. Kantor, M. Lammie, K. Lannon, M. Lemmon, F. Morcos, J. Nabrzyski, C. Sweet, T. Stitt, A. Striegel, D. Thain, E. Ward, and J. Wozniak - University of Southern California: Ewa Deelman - Poznan Supercomputing and Networking Center, Poznan, Poland: Michal Witkowski and Mateus Jarus

GRADUATE ADVISORS

• Master's Thesis: Dr. Michael J. Mills, The Ohio State University
• PhD Dissertation: Dr. Jesus Izaguirre, The University of Notre Dame