

EDUCATION

May 1991, Ph.D., Computer Science, New York University (NYU), Courant Institute of Mathematical Sciences (CIMS), Translation-Lookaside Buffer Consistency in Highly-Parallel Shared-Memory Multiprocessors

January 1981, M.S., Computer Science, NYU, CIMS

February 1979, B.A., magna cum laude, NYU, Major: Computer Science, Minor: Economics

HONORS AND AWARDS

Best Paper Award, Software Track, [The 23rd International Symposium on Computer Architecture and High Performance Computing - SBAC-PAD'2011](#).

Member of the Department of Defense Multidisciplinary Committee for Assessment of the Participation of Historically Black Colleges and Universities and Minority Institutions (HBCUs/MIs) in DoD's Research and Educational Activities, 2010-2011

Member of the University of Texas System Cyberinfrastructure Steering Committee and Faculty Outreach Subcommittee, 2010-2012

Member of Texas Advanced Computing Center (TACC) Board of Visitors, 2009-2011

SC Steering Committee Chair, 2009 (The SCxy Conference is the largest (in 2008 close to 10,000 attendees) international conference for high performance computing and communications; it started in 1988.)

ACM Service Award in recognition of service to the community, in particular, serving as the General Chair, SC08, the 21st International Conference for High Performance Computing, Networking, Storage, and Analysis, 2009

Member of NSF TeraGrid Science Advisory Board, 2008-2010

Member of NSF iPlant EOT Advisory Board, 2008-2010

Member of NSF iPlant Nominating Committee, 2008-2010

Invited Speaker, The Conference on High Speed Computing – Paths to Petaflops (The Salishan Conference), sponsored by Lawrence Livermore, Los Alamos, and Sandia National Laboratories, April 2005

University of Texas System 2004-2005 STAR (Science and Technology Acquisition and Retention) Program award for research infrastructure (\$483,000)

Elected Chair/Past Chair and Member of the Leadership Team, the Coalition to Diversity Computing (CDC), 2004-2005/2005-2006

IBM Faculty Awards, 2003-2006

Elected Member/Member of SC Steering Committee, 2004- 2006/2007-2010

Member of Terascale Advisory Council of the Pittsburgh Supercomputing Center, 2001-2003

CETaL (Center for Excellence in Teaching and Learning) Fellow, UTEP, 2001-2004

Distinguished Teacher Nominee, UTEP, 2001

Certificate of Appreciation and Gift, UTEP Institute for Community-based Teaching and Learning, \$1,000, September 2000

Keynote Speaker, Consortium for Computing in Small Colleges, Texas A&M University-Corpus Christi, April 2000

Best Paper Award, 1998 Frontiers in Education Conference

Invited Speaker, Transputers '94, September 1994

Faculty Opponent and Invited Speaker, Lund Institute of Technology, School of Electrical Engineering, Lund, Sweden, May 1994

Outstanding Referee Award, IEEE Computer Society Press, March 1994

Honorary Member of the Golden Key National Honor Society, March 1994

University Junior Faculty Teaching Award Nominee of Department and College, NMSU, 1994

Best Paper Award Nominee, Architecture Track, Twenty-Seventh Hawaii International Conference on System Sciences, January 1994

RESEARCH INTERESTS

Dynamic adaptation of applications, operating systems, runtime systems, and computer architectures; field-deployable and on-board computer systems; I/O scheduling; application and system performance evaluation, modeling, and enhancements; workload characterization; parallel and distributed computing; computer architecture, emerging technologies, and operating systems.

RELATED WORK EXPERIENCE

August 2005 – Present: The University of Texas at El Paso (UTEP), El Paso, TX, Professor

August 2001 – August 2005: UTEP, El Paso, TX, Associate Professor

January 1997 – August 2001: UTEP, El Paso, TX, Assistant Professor

Teach courses in computer architecture, operating systems, performance evaluation, and parallel and distributed computing. Supervise undergraduate and graduate students, including Master's and Ph.D. candidates, involved in independent studies and research projects (see Students). Conduct and supervise research for example in the following areas: embedded heterogeneous high-performance computing (HHPC) systems for on-board and fielded military systems that meet SWaP (Size, Weight, and Power) constraints; improved computer system/application performance through dynamic adaptation of the operating system, application, and runtime system in response to real-time constraints; development and use of performance evaluation and modeling techniques to identify application, architecture, and operating system performance problems and ways to enhance performance, e.g., in terms of I/O scheduling, in general, and scheduling of checkpoint I/O, in particular; development of methodologies for understanding the data generated by on-chip performance counters and use of this data to improve application performance, e.g., in terms of the scheduling of simultaneous multithreaded (SMT) processors; use of multivariate statistical analysis techniques to analyze performance counter data and communication event traces, and use of this analysis to enhance application performance; characterization of workloads with respect to microarchitecture utilization and memory hierarchy design; design and development of hardware support for runtime software-fault detection; development and use of strategies for enhancing student learning, increasing retention, and increasing graduate student enrollment (see Grants, Publications, Students). Participate as member of university, college, department, and external committees (see Service). Participate in outreach activities (see Service).

August 2001 – August 2003: The University of Texas at El Paso, El Paso, TX, Assistant Dean, Graduate Studies, College of Engineering

Facilitate communication and coordination among the graduate advisors in the various departments of the College. Improve communication and coordination with the Graduate School. Initiate, organize, and orchestrate a hooding ceremony (before graduation) of the Master's candidates. Attend College Administrative Council weekly meetings, present talks re: the graduate programs of the College during presentations to constituents from industry, academia, and the government.

Summer 1996: Intel Corporation, Hillsboro, Oregon, Visiting Faculty

Measure and analyze execution characteristics of graphics applications, including gaming applications.

January 1992 - January 1997: New Mexico State University, Las Cruces, NM, Assistant Professor

Teach courses in computer architecture, operating systems, parallel computing, simulation, and performance evaluation. Design an innovative, hand-on course in machine programming and organization (see Publications). Supervise undergraduate and graduate students, including Master's and Ph.D. candidates, involved in independent studies and research projects. Conduct

and supervise research in workload characterization (w.r.t. the memory hierarchy), uniprocessor and multiprocessor memory hierarchy design and performance evaluation, operating systems, parallel discrete event simulation, multiprocessor simulators, address-trace generators, and efficient simulation of multiprocessor performance on multiprocessors (see Grants, Publications, Students). Co-organize Computer Science/Electrical and Computer Engineering weekly seminar re: parallel processing. Participate as member of university, college, department, and external committees (see Service). Participate in outreach activities (see Service).

August 1991 - December 1991: NYU, CIMS, Ultracomputer Research Laboratory, NYC, NY, Research Scientist

Supervise graduate students working on porting parallel scientific programs to the NYU Ultracomputer. Study Weather benchmark using trace-driven simulations.

June 1989 - July 1991: IBM, T. J. Watson Research Center, Hawthorne, NY, Visiting Researcher: Study shared-memory multiprocessor performance w.r.t. memory hierarchies, virtual memory, multitasking, and cache consistency via trace-driven simulations. Research page replacement policies for shared-memory multiprocessors, parallel cache simulation techniques, and cache behavior.

SCHOLARSHIP

PUBLICATIONS (mentored students' names in bold)

Refereed Journal Papers

M. Taufer, R.S. Armen, J. Chen, P.J. Teller, and C.L. Brooks III. "Computational Multi-Scale Modeling in Protein-Ligand Docking". *IEEE Engineering in Medicine and Biology*, **28**(2): 58-69, 2009.

http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4809862

P. Teller and **S. Seelam**. "Insights into Providing Dynamic Adaptation of Operating System Policies". *ACM Operating Systems Review*, **40**(2):83-89, April 2006.

<http://portal.acm.org/citation.cfm?id=1131322.1131339>

P. Teller and A. Gates. "Using the Affinity Research Group Model to Involve Undergraduate Students in Computer Science Research". *Journal of Engineering Education*, pp. 549-55, October 2001.

V. Adve, R. Bagrodia, J. Browne, E. Deelman, A. Dube, E. Houstis, J. Rice, R. Sakellariou, D. Sundaram-Stukel, P. Teller, and M. Vernon. "POEMS: End-to-end Performance Design of Parallel Adaptive Computational Systems". *IEEE Transactions on Software Engineering*, Special section of invited papers from the WOSP '98 Workshop, **26**(11): 1027-1048, November 2001.

1048<http://www2.computer.org/portal/web/csdl/doi/10.1109/32.881716>

A. Gates and P. Teller. "An Integrated Development of a Dynamic Software-fault Monitoring System". *Journal of Integrated Design and Process Science*, **4**(3): 63-78, September 2000.

A. Gates, P. Teller, A. Bernat, **N. Delgado**, and C. Kubo Della-Piana. "Expanding Participation in Undergraduate Research Using the Affinity Group Model". *Journal of Engineering Education*, **88**(4): 409-414, October 1999.

G. Chen, A. Gottlieb, and P. Teller. "Optimization Techniques for Directory-based Cache Coherence Protocols for Large-scale Multiprocessors". *Parallel Computing: Trends and Applications*, pp. 671-674, 1994.

P. Teller. "Translation-lookaside Buffer Consistency". *IEEE Computer*, **23**(6): 26-36, June 1990.

Invited Journal Papers

P. Teller. "MP Simulations via Unscheduled Traces". *Calculateurs paralleles*, **7**, 1, pp. 9-25, April 1995.

Book Sections

- A. Bernat and P. Teller. "Concurrent/Distributed Computing Paradigm". *CRC Handbook of Computer Science and Engineering, Second Edition*, edited by Allen Tucker, Bob Stern, and Bob Noonan, et al., December 2003.
- P. Teller. "The Cost of TLB Consistency," *Cache and Interconnect Architectures in Multiprocessors*, edited by M. Dubois and S. Thakkar, Norwell, MA: Kluwer Academic Publishers, pp. 1-14, 1990.
- P. Teller. "Common Memory Working Group Summary". *Instrumentation for Future Parallel Systems*, edited by M. Simmons, R. Koskela, and I. Bucher, Addison-Wesley Publishing Co., pp. 233-237, 1989.

Patents

- S. Seelam** and P. J. Teller. "Method and Devices for Determining Quality of Services of Storage Systems," U.S. Patent Application No. 12/054,598.
<http://www.faqs.org/patents/app/20080244209>, published October 2008.

Invention Disclosures

- P. Teller and H. Stone. "Parallel Simulation of Multiprocessor Caches". *IBM Invention Disclosure*, July 1992.

Refereed Conference and Workshop Papers

- S. Arunagiri, **Y. Kwok**, P. J. Teller, **R. Portillo**, and S. Seelam, "FAIRIO: An Algorithm for Differentiated I/O Performance," to appear in the *Proceedings of the 23rd International Symposium on Computer Architecture and High Performance Computing - SBAC-PAD'2011*, Vitória, Espírito Santo, Brazil, October 26-29, 2011. Received Best Paper Award for the Software Track of the SBAC-PAD conference.
- R. Portillo**, S. Arunagiri, P. J. Teller, L. H. Nguyen, S. J. Park, D. R. Shires, and J. C. Deroba, "Power versus Performance Tradeoffs of GPU-accelerated Backprojection-based Synthetic Aperture Radar Image Processing". In *Proceedings of the Modeling and Simulation for Defense Systems and Applications VI Conference*, part of the SPIE Defense, Security, and Sensing Conference, Orlando, FLA. April 25-29, 2011.
- S. Arunagiri, **V. Barraza**, P. Teller, J. C. Deroba, D. R. Shires, L. H. Nguyen, and S. J. Park, "Stereo Matching: Performance Study of Two Global Area-based Algorithms". In *Proceedings of the Radar Sensor Technology XV Conference*, part of the SPIE Defense, Security, and Sensing Conference, Orlando, FLA. April 25-29, 2011.
- S. Arunagiri, J. T. Daly, and P. J. Teller, "Modeling and Analysis of Checkpoint I/O Operations". In *Proceedings of 16th International Conference on Analytical and Stochastic Modeling Techniques and Applications (ASMTA'09)*, Madrid, Spain, Lecture Notes in Computer Science, 2009, Vol. 5513/2009, pp. 386-400, June 9-12, 2009.
<http://portal.acm.org/citation.cfm?id=1573724&picked=prox&cfid=12678024&cftoken=74610835>
- W. Spear, S. Shende, A. Malony, **R. Portillo**, P. Teller, D. Cronk, S. Moore, and D. Terpstra. "Making Performance Analysis Tuning Part of the Software Development Cycle". In *Proceedings of the 2009 DoD High Performance Computing Modernization Program (HPCMP) Users Group Conference (UGC) 2009*, San Diego, CA, pp. 430-437, June 15-18, 2009.
<http://www.computer.org/portal/web/csdl/doi/10.1109/HPCMP-UGC.2009.71>
- M. R. Meswani**, P. J. Teller, and S. Arunagiri. "Measuring and Validating Metrics used to Estimate Microarchitecture Resource Utilization: A Case Study of the IBM POWER5 Processor". In *Proceedings of the 23th Live-Virtual-Constructive Conference* (formerly known as the ITEA Modeling and Simulation Conference), hosted by the White Sands Chapter of the International Test and Evaluation Association (ITEA), January 12-15, 2009, El Paso, TX.

- P. C. Trillo, M. R. Meswani**, P. J. Teller, and S. Arunagiri. “A Study of the Influence of the POWER5 Dynamic Resource Balancing Hardware on Optimal Hardware Thread Priorities”. In *Proceedings of the 13th Live-Virtual-Constructive Conference* (formerly known as the ITEA Modeling and Simulation Conference), hosted by the White Sands Chapter of the International Test and Evaluation Association (ITEA), January 12-15, 2009, El Paso, TX (Best Undergraduate Student Paper Award, \$1000 Scholarship). http://www.itea-wsmr.org/ITEA%20Papers%20%20Presentations/2009%20ITEA%20Papers%20and%20Presentations/LVC_PTrillo_student_paper_Jan09.pdf
- G. A. Lopez**, M. Taufer, and P. J. Teller. “Evaluation of IEEE 754 Floating-Point Arithmetic Compliance Across a Wide Range of Heterogeneous Computers”. In *Proceedings of the 2007 Richard Tapia Celebration of Diversity in Computing Conference*, pp. 1-4, October 2007.
- R. A. Oldfield, S. Arunagiri, P. J. Teller, **S. Seelam**, **M. R. Varela**, R. Riesen, and P. C. Roth. “Modeling the Impact of Checkpoints on Next-Generation Systems”. In *Proceedings of the 24th IEEE Conference on Mass Storage Systems and Technologies, 2007 (MSST 2007)*, San Diego, CA, pp. 30-46, September 2007. <http://www2.computer.org/portal/web/csd/doi/10.1109/MSST.2007.24>
- S. Seelam**, S. Kerstens, and P. J. Teller. “Throttling I/O Streams to Accelerate File-I/O Performance”. In *Proceedings of the Third IEEE International Conference on High Performance Computing and Communications (HPCC-2007)*, LNCS 4782, pp. 718-731, September 2007. <http://www.springerlink.com/content/5437721257k66762/>
- S. Seelam** and P. J. Teller. “Virtual I/O Schedule: A Scheduler of Schedulers for Performance Virtualization”. In *Proceedings of the 3rd International ACM/SIGPLAN/SIGOPS Conference on Virtual Execution Environments*, San Diego, CA, pp. 105-115, June 2007.
- M. Taufer, A. Kerstens, T. Estrada, **D. Flores**, and P. Teller. “SimBA: A Discrete Event Simulator for Performance Prediction of Volunteer Computing Projects”. In *Proceedings of the 21st International Workshop on Principles of Advanced and Distributed Simulation (PADS'07)*, pp. 189-197, June 2007.
- M. Taufer, A. Kerstens, T. Estrada, **D. Flores**, R. Zamudio, P. Teller, R. Armen, and C. Brooks III. “Moving Volunteer Computing towards Knowledge-Constructed, Dynamically-Adaptive Modeling and Scheduling”. In *Proceedings of the First Workshop on Large-Scale, Volatile Desktop Grids (PCGrid'07)*, in conjunction with the 21st IEEE International Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA, pp. 1-8, March 2007.
- S. Arunagiri, S. Seelam, and P. J. Teller. “Storage Performance Isolation: An Investigation of Contemporary I/O Schedulers”. Abstract in *Proceedings of the 5th USENIX Conference on File and Storage Technologies (FAST'07)*, San Jose, CA, pp. 15-15, February 2007.
- P. Agarwal, C. E. Rubio-Medrano, Yoonsik Cheon, and Patricia J. Teller. “A Formal Specification in JML of the Java Security Package”. In *Advances and Innovations in Systems, Computing Science, and Software Engineering*, Khaled Elleithy (ed.), pp. 363-368, Springer, 2007.
- P. Agarwal, C. E. Rubio-Medrano, Y. Cheon, and P. J. Teller. “A Formal Specification in JML of the Java Security Package”. In *Proceedings of the International Conference on Systems, Computing Sciences and Software Engineering*, December 4-14, 2006.
- T. Estrada, **D. Flores**, M. Taufer, P. Teller, A. Kerstens, and D. Anderson. “The Effectiveness of Threshold-based Scheduling Policies in BOINC Projects”. In *Proceedings of the 2st IEEE International Conference on e-Science and Grid Technologies (eScience 2006)*, Amsterdam, The Netherlands, December 2006.
- S. Seelam** and P. Teller. “Fairness and Performance Isolation: an Analysis of Disk Scheduling Algorithms”. In *Proceedings of the International Workshop on High Performance I/O Techniques and Deployment of Very Large Scale I/O Systems (HiperIO'06)*, Barcelona, Spain, pp. 1-10, September 25-28, 2006. http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4100405

- S. Seelam, J. Suresh Babu**, and P. Teller. “Rate-Controlled Scheduling of Expired Writes for Volatile Caches”. In *Proceedings of the 3rd International Conference on Quantitative Evaluation of SysTems (QEST’06)*, University of California, Riverside, CA, USA, pp. 51-62, September 11-14, 2006.
- M. Meswani** and P. Teller. “Evaluating the Performance Impact of Hardware Thread Priorities in Simultaneous Multithreaded Processors using SPEC CPU2000”. In *Proceedings of the Second International Workshop on Operating System Interference in High Performance Applications (OSIHPA)*, Seattle, WA, September 2006.
- R. Araiza, J. Nava, A. Taylor**, P. Teller, D. Cronk, and S. Moore. “Prototype Visualization Tools for Multi-experiment Performance Analysis”. In *Proceedings of the 2006 HPCMP Users Group Conference (HPCMP-UGC ’06)*, Denver, CO, pp. 394-398, June 2006.
- M. G. Aguilera**, P. J. Teller, M. Taufer, and F. Wolf. “A Systematic Multi-step Methodology for Performance Analysis of Communication Traces of Distributed Applications based on Hierarchical Clustering”. In *Proceedings of the 5th International Workshop on Performance Modeling, Evaluation, and Optimization of Parallel and Distributed Systems (PMEO-PDS 2006)*, in conjunction with the IEEE International Parallel & Distributed Processing Symposium (IPDPS), Rhodes Island, Greece, pp. 388, April 25-29, 2006.
- M. Taufer, P.J. Teller, A. Kerstens, R. Romero. “Collaborative Research Tools for Students, Staff, and Faculty. In *Proceedings of the International SUN Conference on Teaching and Learning*, UTEP, El Paso, TX, March 2006.
- M. Taufer, P. Teller, D. Anderson, and C. Brooks III. “Metrics for Effective Resource Management in Global Computing Environments”. In *Proceedings of the 1st IEEE International Conference on e-Science and Grid Technologies (eScience 2005)*, Melbourne, Australia, December 2005. http://www.cs.utep.edu/mtauffer/publications/conferences/escience05/escience05_paper_mtauffer.pdf
- R. Araiza, M. G. Aguilera, T. Pham**, and P. Teller. “Towards a Cross-Platform Microbenchmark Suite for Evaluating Hardware Performance Counter Data”. In *Proceedings of the Richard Tapia Celebration of Diversity in Computing Conference 2005*, ACM Digital Library, sponsored by ACM, IEEE-Computer Society, and CRA, September 18, 2005.
- D. Villa, M. Meswani**, P. Teller, and B. Olszewski. “Profiling Memory Subsystem Performance in an Advanced POWER Virtualization Environment”. In *Proceedings of the Workshop on Operating System Interference on High Performance Applications*, in conjunction with the 14th International Conferences on Parallel Architectures and Compilation Techniques (PACT05) Conference, sponsored by ACM and IEEE September 18, 2005.
- S. Seelam, J. Suresh Babu**, and P. Teller. “Automatic I/O Scheduler Selection for Latency and Bandwidth Optimization”. In *Proceedings of the Workshop on Operating System Interference on High Performance Applications (OSIHPA)*, in conjunction with the 14th International Conferences on Parallel Architectures and Compilation Techniques (PACT05) Conference, sponsored by ACM and IEEE, August 31, 2005. <http://research.ihost.com/osihpa/osihpa-seelam.pdf>
- S. Seelam**, R. Romero, P. Teller, and B. Buros. “Enhancements to Linux I/O Scheduling”. In *Proceedings of the Linux Symposium*, July 2005.
- S. Moore, D. Cronk, F. Wolf, A. Purkayastha, P. Teller, **R. Araiza, M. Aguilera**, and **J. Nava**. “Performance Profiling and Analysis of DoD Applications Using PAPI and TAU”. In *Proceedings of the Department of Defense, High Performance Computing Modernization Program Users Group Conference 2005*, Nashville, TN, June 27-30, 2005.
- R. Portillo, D. Villa**, P. J. Teller, and B. Olszewski. “Mining Performance Data From Sampled Event Traces”. In *Proceedings of the 12th Annual Meeting of the IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication*

- Systems (MASCOTS 2004)*, October 2004; also in *Proceedings of the Sixth Annual Austin Center for Advanced Studies Conference*, February 24-25, 2005.
- D. Villa, J. Acosta**, P. J. Teller, B. Olszewski, and **T. Morgan**. “Memory Performance Profiling via Sampled Performance Monitor Event Traces”. In *Proceedings of the 5th Los Alamos Computer Science Symposium (LACSI 2004)*, October 2004.
- D. Villa, J. Acosta**, P. J. Teller, B. Olszewski, and **T. Morgan**. “A Framework for Profiling Multiprocessor Memory Performance”. In *Proceedings of the 10th International Conference on Parallel and Distributed Systems*, July 2004.
- S. Moore, D. Terpstra, K. London, P. Mucci, P. Teller, **L. Salayandia**, **A. Bayona**, and **M. Nieto**. “PAPI Deployment, Evaluation, and Extensions”. In *Proceedings of the DoD High Performance Computing Modernization Program’s User Group Conference 2003*, Bellevue, WA, June 2003.
- P. Teller, **M. Nieto**, and S. Roach. “Combining Learning Strategies in a First Course in Computer Architecture”. In *Proceedings of the Workshop on Computer Architecture Education (WCAE 2003)*, held in conjunction with *The 30th International Symposium on Computer Architecture and 2003 Federated Computing Research Conference*, San Diego, CA, pp. 41-48, June 2003.
- M. Maxwell**, P. Teller, **L. Salayandia**, and S. Moore. “Accuracy of Performance Monitoring Hardware”. In *Proceedings of the Los Alamos Computer Science Institute Symposium 2002 (LACSI 2002)*, Santa Fe, NM, October 2002.
- M. Maxwell**, S. Moore, P. Teller. “Efficiency and Accuracy Issues for Sampling vs. Counting Modes of Performance Monitoring Hardware”. In *Proceedings of the DoD High Performance Computing Modernization Program’s User Group Conference 2002*, June 2002.
- G. Rybak**, P. Teller, and R. Oliver. “Identifying Application Performance Limitations associated with Microarchitecture Design”. In *Proceedings of the Los Alamos Computer Science Institute Symposium 2001 (LACSI 2001)*, Santa Fe, NM, October 15-18, 2001.
- W. Korn**, P. Teller, and **G. Castillo**. “Just How Accurate Are Performance Counters”. In *Proceedings of the 2001 IEEE International Performance, Computing and Communications Conference (IPCCC 2001)*, Phoenix, AZ, pp. 303-310, April 4-6, 2001.
- P. Teller and A. Gates. “Applying the SSEAL Affinity Research Group Model to Computer Science Research Projects”. In *Proceedings of the 2000 Frontiers in Education Conference (FIE 2000)*, Kansas City, MO, October 18-21, 2000.
- A. Bernat, P. Teller, A. Gates, **N. Delgado**, and C. Kubo Della-Piana. “Structuring the Student Research Experience”. In *Proceedings of the Fifth Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE)*, Helsinki, Finland, pp. 17-20, July 11-12, 2000.
- A. Gates and P. Teller. “An Integrated Design of a Dynamic Software-fault Monitoring System”. In *Proceedings of the Fourth World Conference on Integrated Design and Process Technology*, Dallas, TX, June 2000.
- R. Oliver and P. Teller. “Dynamic and Adaptive Cache Prefetch Policies”. In *Proceedings of the 2000 IEEE International Performance, Computing and Communications Conference (IPCCC 2000)*, Phoenix, AZ, February 20-22, 2000.
- P. Teller and A. Gates. “Progress Towards a Comprehensive Knowledge-based Monitoring System for the Development and Evolution of Software”. In *Proceedings of the High Performance Computing and Communications Program/Computational Aerosciences 2000 Workshop (HPCC/CAS Workshop)*, NASA Ames Research Center, February 15-17, 2000.
- A. Gates and P. Teller. “DynaMICs: an Automated and Independent Software-fault Detection Approach”. In *Proceedings of the Fourth IEEE International Symposium on High-Assurance Systems Engineering Symposium (HASE ’99)*, Washington, D.C., pp. 11-19, November 17-19, 1999.

- A. Gates, P. Teller, A. Bernat, S. Cabrera, and C. Kubo Della-Piana. "A Cooperative Model for Orienting Students to Research Groups". In *Proceedings of the 1999 Frontiers in Education Conference (FIE 1999)*, San Juan, Puerto Rico, CD-ROM, November 1999.
- R. Oliver and P. Teller. "Are All Scientific Workloads Equal?". In *Proceedings of the 1999 IEEE International Performance, Computing and Communications Conference (IPCCC '99)*, Scottsdale, AZ, pp. 284-290, February 1999.
- P. Teller, **M. Maxwell**, and A. Gates. "Towards the Design of a Snoopy Coprocessor for Dynamic Software-fault Detection". In *Proceedings of the 1999 IEEE International Performance, Computing and Communications Conference (IPCCC '99)*, Scottsdale, AZ, pp. 310-317, February 1999.
- A. Gates, P. Teller, A. Bernat, **N. Delgado**, and C. Kubo Della-Piana. "Meeting the Challenge of Expanding Participation in the Undergraduate Research Experience". In *Proceedings of the 1998 Frontiers in Education Conference*, Tempe, Arizona, pp.1133-1138, November 4-7, 1998 (Best Paper Award).
- E. Deelman, A. Dube, Y. Luo, R. Oliver, D. Sundaram-Stukel, V. Adve, R. Bagrodia, J. Browne, E. Houstis, O. Lubeck, J. Rice, P. Teller, and M. Vernon. "POEMS: End-to-end Performance Design of Parallel, Adaptive Computational Systems". In *Proceedings of the First International Workshop on Software and Performance (WOSP)*, Santa Fe, NM, pp. 18-30, October 12-16, 1998.
- M. Maxwell**, **L. Rauda**, P. Teller and A. Gates. "An Initial Design of a Coprocessor/Snoopy Hardware Integrity Constraint Monitoring Simulator". In *Proceedings of the ITEA Workshop, Modeling and Simulation (Establishing Seamless, Distributed and Integrated Solutions to Real-World Problems)*, Las Cruces, NM, pp. 385-394, December 7-10, 1998 (Best Student Paper Award, \$1000 Scholarship).
- R. Oliver**, **W. McGregor**, and P. Teller. "Accurate Measurement of System Call Service Times for Trace-driven Simulation of Memory Hierarchy Designs". In *Proceedings of the 1998 IEEE International Performance, Computing, and Communications Conference (IPCCC '98)*, Tempe/Phoenix, AZ, pp. 239-244, February 16-18, 1998.
- R. Oliver** and P. J. Teller. "Generating Dynamically Scheduled Memory Address Traces". In *Proceedings of the 1998 IEEE International Performance, Computing, and Communications Conference (IPCCC '98)*, Tempe/Phoenix, AZ, pp. 245-250, February 16-18, 1998.
- P. Teller. "Experimental, Cooperative Labs in a First Course in Computer Architecture". In *Proceedings of the 1997 Frontiers in Education Conference (FIE '97)*, Pittsburgh, PA, November 1997.
- A. Bernat, A. Gates, P. Teller, and S. Cabrera. "Affinity Groups for Student Success in Computing". In *Proceedings of the 1997 ADMI Conference*, Washington, DC, pp. 206-211, May 29-30, 1997.
- P. Teller and T. Dunning. "Mobil Robots Teach Machine Programming and Organization". In *Proceedings of Supercomputing '95*, San Diego, CA, CD-ROM, December 1995.
- S. Cooper** and P. Teller. "Configuring a Large LAN for TCP/IP, Appletalk, and IPX". In *Proceedings of the Twentieth Annual Conference on Local Area Networks*, October 1995.
- P. Teller. "Unscheduled Traces and Shared-memory Multiprocessor Simulation". In *Proceedings of the International Conference on Parallel Processing (ICPP '95)*, pp. 1159-162, August 1995.
- Q. Xu** and P. Teller. "Unified vs. Split TLBs and Caches in Shared-memory MP Systems". In *Proceedings of the International Parallel Processing Symposium (IPPS '95)*, Santa Barbara, CA, pp. 398-403, April 1995.
- P. Teller and **Q. Xu**. "Memory-based Multiprocessor Translation-lookaside Buffers: Multiple Paging Arenas vs. Large-size TLBs". In *Proceedings of the International Phoenix Conference on Computers and Communication*, Phoenix, AZ, pp. 47-53, April 1994.

- P. Teller and A. Gottlieb. "Locating Multiprocessor TLBs at Memory". In *Proceedings of the Twenty-seventh Hawaii International Conference on System Sciences (HICSS '94)*, pp. 554-563, January 1994 (Best Paper Award Nominee in Architecture Track).
- G. Chen, A. Gottlieb, and P. Teller. "Optimization Techniques for Directory-based Cache Coherence Protocols for Large-scale Multiprocessors". In *Proceedings of Parallel Computing 93 (PARCO 1993)*, Grenoble, France, pp. 671-674, September 1993.
- R. Kenner, R. Bianchini, S. Dickey, and P. Teller. "A Compact Design for a Highly-parallel Shared-memory MIMD Computer". In *Proceedings of Compcon Spring 1989*, Miami, FLA, pp. 264-269, February/March 1989.
- R. Kenner, S. Dickey, and P. Teller. "The Design of Processing Elements on a Multiprocessor System with a High-bandwidth, High-latency Interconnection Network". In *Proceedings of the Twenty-Second Hawaii International Conference on System Sciences*, pp. 319-328, January 1989.
- P. Teller, R. Kenner, and M. Snir. "TLB Consistency on Highly-parallel Shared-memory Multiprocessors". In *Proceedings of the Twenty-First Hawaii International Conference on System Sciences (HICSS '88)*, pp. 184-193, January 1988 (Best Paper Award Nominee).
- J. Edler, A. Gottlieb, C. Kruskal, K. McAuliffe, L. Rudolph, M. Snir, P. Teller, and J. Wilson. "Issues Related to MIMD Shared-memory Computers: the NYU Ultracomputer Approach". In *Proceedings of the 12th Annual International Symposium on Computer Architecture (ISCA 1985)*, pp. 126-135, June 1985.

Invited Conference Papers

- J. C. Browne, C. Lin, K. Kane, Y. Cheon, and P. J. Teller. "Unification of Verification and Validation Methods for Software Systems: Progress Report and Initial Case Study Formulation". In *Proceedings of the 20th International Parallel and Distributed Processing Symposium (IPDPS 2006), NGS Workshop*, Rhodes Island, Greece, pp. 25-29, April 2006.
- D. Villa, M. Meswani**, P. Teller, B. Olszewski, and M. Anand. "Profiling Memory Subsystem Performance in an Advanced POWER Virtualization Environment". In *Proceedings of the IBM-Austin ACAS 2006 Conference*, February 2006.
- D. Villa, J. Acosta, T. Morgan**, P. Teller, and B. Olszewski. "Memory Performance Profiling via Sampled Performance Monitor Event Traces". In *Proceedings of the IBM-Austin ACAS 2004 Conference*, Austin, TX, February 2004.
- P. Teller, **R. Amezcua**, and R. Acosta. "Top Gun: UTEP's p690". In *Proceedings of the IBM-Austin ACAS 2004 Conference*, Austin, TX, February 2004.
- V. Adve, J. Browne, B. Ensink, J. Rice, P. Teller, M. Vernon, and S. Wright. "An Approach to Optimizing Adaptive Parabolic PDE Solvers for the Grid". In *Proceedings of the IPDPS 2003 NGS Workshop*, April 2003.
- T. Morgan, D. Villa**, P. Teller, **J. Acosta**, and B. Olszewski. "L2-Cache Miss Profiling on the p690 for a Large-scale Database Application". In *Proceedings of the IBM-Austin ACAS 2003 Conference*, Austin, TX, February 2003.
- V. Adve, **A. Akinsanmi**, J. Browne, D. Buaklee, G. Deng, V. Lam, **T. Morgan**, J. Rice, G. Rodin, P. Teller, G. Tracy, M. Vernon, and S. Wright. "Model-Based Control of Adaptive Applications: An Overview". In *Proceedings of the IPDPS 2002 NGS Workshop*, April 2002.
- V. Adve, J. Vetter, R. Bodik, D. Kerbyson, S. Sen, and P. Teller. "Working Group 3: Performance Specification and Control Languages," *Report for Workshop on Performance Engineering Technology Research Sponsored under the NSF Next Generation Software (NGS) Program*, Austin, TX, February 28-March 1, 2002.
- P. Teller, "Unscheduled Traces and Shared-memory Multiprocessor Simulation." In *Proceedings of Transputers '94: Advanced Research and Industrial Applications*, France, September 1994.

Student Conference Papers

- L. Rauda and M. Maxwell (Advisors: A. Gates and P. Teller). “A Parallel Discrete-event Simulation of a DynaMICS Snoopy Coprocessor System”. In *Proceedings of the Thirteenth National Conference on Undergraduate Research*, Rochester, NY, April 1999.
- A. Caraveo (Advisor: P. Teller), “Accuracy and Precision Issues in GIS Data Transfers”. In *Proceedings of the 1997 ADMI Symposium on Computing at Minority Institutions*, Washington, D.C., pp. 106-111, May 29-30, 1997.
- M. Maxwell (Advisor: P. Teller), “Using VTune to Identify Potential Pentium Pro Performance Bottlenecks”. In *Proceedings of the 1997 ADMI Symposium on Computing at Minority Institutions*, Washington, D.C., pp. 2-5, May 29-30, 1997.

Invited Other Papers

- P. Teller and S. Arunagiri (with N. McGuire), “HPC in Image Processing – Putting the Technology on Board,” to appear in *AHPCRC Bulletin*, 2011.
- P. Teller, S. Arunagiri, and J. Cook, “Projects 4-3 and 4-7: High Performance Computing in Image Processing”. To appear as an *Army High Performance Computing Research Center Success Story*, April 2011.
- P. Teller, “UTEP Summer Program Brings Computation to Life,” *AHPCRC Bulletin*, 2009, **1**(4):20-21.
- P. Teller, “Expanding the Pipeline: Coalition to Diversify Computing (CDC)”. In *Computing Research News*, p. 2. November 2004.
- A. Gates and P. Teller. “Research in the Systems and Software Engineering Lab”. In *looking .forward, IEEE Computer Society’s Student Newsletter*, **7**, 1, 1999.
- A. Gates and P. Teller. “Building Affinity Groups to Enable and Encourage Student Success in Computing”. In *Proceedings of Infrastructure 98: NSF CISE/EIA RI and MII PI’s Workshop*, Snowbird, Utah, July 24-26, 1998, pp. 222-226.

Selected Technical Reports

In addition to quarterly and annual reports submitted to funding agencies, reports associated with conference program committee service, educational materials, Master’s theses and reports, and Ph.D. dissertations, the following list includes selected technical reports that have not been published (in the formal sense of the word).

- S. Arunagiri, **V. Barraza**, and P. Teller, *Stereo Matching: Performance Study of Simulated Annealing VS Graph Cut Algorithms*. Technical Report, Department of Computer Science, The University of Texas at El Paso, El Paso, TX, in preparation.
- Y. Kwok**, **J. McCartney**, S. Arunagiri, and P. Teller, *GPGPU Programming Approach Productivity Comparisons - CUDA vs. OpenCL vs. PGI (Ongoing Study)*. Technical Report, Department of Computer Science, The University of Texas at El Paso, El Paso, TX, in preparation.
- R. Portillo**, S. Arunagiri, and P. Teller, *Power vs. Performance Evaluation of Synthetic Aperture Radar Image-Formation Algorithms and Implementations for Embedded HEC Environments (Ongoing Study)*. Technical Report, UTEP-CS-10-47, Department of Computer Science, The University of Texas at El Paso, El Paso, TX, October 2010.
- S. R. Seelam** and Patricia J. Teller, “Disk Scheduling using Fair Queuing and Round-Robin: Fairness Analysis,” Technical Report, University of Texas at El Paso, College of Engineering-Computer Science. El Paso, TX, December 2005.
- M. G. Aguilera**, **R. Araiza**, **T. Pham**, and P. Teller, “Towards a Cross-Platform Microbenchmark Suite for Evaluating Hardware Performance Counter Data,” Technical Report, University of Texas at El Paso, UTEP-CS-05-32, May 2005.
- J. Rice, P. Rao, P. Teller, et al., “MOL: Method of Lines Application,” Technical Report, Purdue University, December 2002.
- P. Teller, “On Performance Metrics,” for DARPA/Mitre, August 2002..
- P. Teller, **G. Rybak**, and **J. Moses**, “Characterization of Sweep3D”, POEMS Report, October 1999.
- P. Teller, **C. Sachar**, and **J. Galloway**, “MPI-SS”, POEMS Report, August 1999.

- A. Bernat, A. Gates, P. Teller, and S. Cabrera, “Building Affinity Groups to Enable and Encourage Student Success in Computing,” NSF Affinity Group Model Annual Reports, short versions published in Proceedings of NSF CISE/EIA RI and MII PIs Workshop, May 1999-May 2000, May 1998-May 1999, and May 1997-May 1998.
- V. Adve, R. Bagrodia, J. Browne, E. Houstis, Y. Luo, J. Rice, P. Teller, and M. Vernon, “Dynamic Performance Management: Integration of Measurement and Modeling with Compilers,” December 1998.
- P. Teller and R. Oliver, “POEMS Interfaces,” July 1998.
- P. Teller, **J. Cook**, **W. Korn**, R. Oliver, **G. Rybak**, and **C. Sachar**, “POEMS Hardware Domain Component Model Specification,” 1998.
- W. McGregor**, **R. Oliver**, and P. Teller, “A Methodology for the Measurement of Operating System Calls,” NMSU Technical Report, April 1997.
- R. Oliver** and P. Teller, “Unscheduled Uniprocessor Multitask Trace Generation,” NMSU Technical Report, November 1996.
- P. Teller, “Unscheduled Traces and Shared-memory Multiprocessor Simulation,” NMSU Technical Report NMSU-CSTR-9426, 1995.
- H. Molina Salgado** and P. Teller, “Parallel Trace-driven Simulation of Multiprocessor Cache Systems,” NMSU Technical Report, Master’s, April 1994.
- Q. Xu** and P. Teller, “A Trace-driven Simulation Study of MIMD Shared-memory Multiprocessors,” NMSU Technical Report NMSU-CSTR-9305, April 1993.
- V. Lambert** and P. Teller, “Cache and TLB Performance in Shared-memory Multiprocessors,” NMSU Technical Report NMSU-CSTR-9309, February 1993.
- P. Teller, “Consistency-ensuring TLB Management for Shared-memory Multiprocessors,” IBM Research Report RC 15258, December 1989.
- P. Teller, “The TLB Consistency Problem,” IBM Research Report RC 15156, November 1989.
- F. Darema, A. Karp, and P. Teller (contributors), “Applications Survey Report-I,” IBM Research Report RC 12743, Edited by F. Darema, May 1987.

PRESENTATIONS

Selected Invited Talks

- TA4: Project 4-3 – Specifying Field-Deployable and On-Board Computer Systems,” Army High Performance Computing Center (AHPCRC) Visit of Drs. John Pellegrino and Jim Chang, March 2, 2011.
- “I/O Coordination to Improve HEC System Performance: a Marriage of Analytical Modeling, Control Theory, and Differentiated I/O Performance,” at DoE Joint Math/CS Institute Meeting (in conjunction with SC10), New Orleans, LA, November 2010.
- “TA4: Project 4-3 – Specifying Field-Deployable and On-Board Computer Systems,” Army High Performance Computing Center (AHPCRC) Annual Review, August 18, 2010.
- “Preparing Students to Meet Tomorrow’s Challenges in Education,” Keynote Talk, Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Joint Educational Opportunities for Minorities (JEOM) Research Workshop, June 29-July 1, 2010.
- “Preparation for STEM Professional Careers in the Computational Sciences in Academia,” Plenary Talk (day 2), Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Joint Educational Opportunities for Minorities (JEOM) Research Workshop, June 29-July 1, 2010.
- TA4: Project 4-3 – Specifying Field-Deployable and On-Board Computer Systems,” Army High Performance Computing Center (AHPCRC) Visit of Ms. Jill Smith and Dr. Cary Chabalowski, U.S. Army, et al., March 18, 2010.
- “TA4: Project 4-3 – Simulation and Modeling to Improve the Performance of Multicore Processors,” AHPCRC Visit of ARL Director, Mr. John Miller, January 12, 2010.

- “I/O Coordination to Improve HEC System Performance: a Marriage of Analytical Modeling, Control Theory, and Differentiated I/O Performance,” at DoE Joint Math/CS Institute Kick-Off Meeting (in conjunction with SC09), Portland, OR, November 2009.
- “HEC I/O Coordination based on Judicious Checkpointing and I/O QoS,” at National Center For Computational Sciences (NCCS), Oak Ridge National Laboratory, Oak Ridge, TN, NCCS and Leadership Computing Facility (LCF) Seminar, October 20, 2009.
- “TA4: Project 4-3 Simulation and Modeling to Improve the Performance of Systems of Multicore Processors,” at AHPARC (Army High Performance Computing Center) Annual Review, Stanford University, June 9, 2009.
- “TA4: Project 4-3 Simulation and Modeling to Improve the Performance of Systems of Multicore Processors,” at AHPARC (Army High Performance Computing Center) Annual Review, Stanford University, August 2008.
- “Common Performance Metrics,” Open Source Performance Analysis Tools (OSPAT) Birds of a Feather Meeting, SC05, Seattle, WA, November 2005.
- “DAiSES: Dynamic Adaptivity in Support of Extreme Scale,” FastOS PI Meeting, Rockville, MD, June 9-10, 2005.
- “Challenges in Scalability of Performance Tools for Petaflops Systems,” The Conference on High Speed Computing – Paths to Petaflops (The Salishan Conference), sponsored by Lawrence Livermore, Los Alamos, and Sandia National Laboratories, April 2005, Gleneden Beach, Oregon.
- “Memory Performance Profiling via Sampled Performance Monitor Event Traces,” Oregon State University, Corvallis, OR, April 2004.
- “The Importance of Undergraduate Research Experiences and Higher Education – a Personal Perspective,”
- Guest Speaker, Research Experience For Undergraduates Spring 2002 Reception, The University of Texas at El Paso, May 15, 2002.
- Keynote Lecture: “Providing Educational Opportunities to Diverse Populations: Affinity Research Groups,” (with A. Gates), Consortium for Computing in Small Colleges, Eleventh Annual South Central Conference, Texas A&M University-Corpus Christi, April 14-15, 2000.
- “Towards the Design of a Snoopy Coprocessor for Dynamic Software Fault Detection,” Arctic Supercomputing Center, University of Alaska, Fairbanks, AK, April 19, 1999.
- “POEMS: End-to-end Performance Design of Large Parallel Adaptive Computational Systems,” Arctic Supercomputing Center, University of Alaska, Fairbanks, AK, April 20, 1999.
- “Hardware Domain Specification,” Workshop on Performance Technology, DARPA PI Meeting, Annapolis, MD, August 20, 1998.
- “Hardware Working Group Summary,” Workshop on Performance Technology, DARPA PI Meeting, Annapolis, MD, August 21, 1998.
- “DynaMICs,” Center for Survivable Information Systems, All Hands Meeting, University of Virginia, Charlottesville, VA, July 28-29, 1998.
- “Performance Oriented End-to-end Modeling of Large Heterogeneous Adaptive Parallel/Distributed Computer/Communications Systems” (with R. Oliver), Rio Grande ACM Conference, El Paso, TX, March 27, 1998.
- “POEMS Hardware Components and Component Models,” “POEMS Measurement and Parameterization of Components” and “POEMS Sweep3D Study,” The University of Texas at Austin, POEMS PI/DARPA meeting, March 6, 1998.
- “An Orientation to the Affinity Research Group Model” (with A. Gates), The Eighth National Conference on College Teaching and Learning, Jacksonville, FLA, April 1997.
- “Unscheduled Traces and Shared-memory Multiprocessor Simulation,” The University of Texas at San Antonio, February 28, 1997.

- “Memory-based Multiprocessor Translation-lookaside Buffers: Multiple Paging Arenas vs. Large-size TLBs,” Lund Institute of Technology, School of Electrical Engineering, Lund, Sweden, May 1994.
- “Shared-memory Multiprocessor TLB Performance,” Los Alamos National Laboratory, Los Alamos, NM, June 1993.
- “Locating TLBs at Memory,” Los Alamos National Laboratory, Los Alamos, NM, September 1992.
- “TLB Performance in Multiprocessors,” University of Colorado, Boulder, CO, April 1992.
- “TLB Consistency in Highly-parallel Shared-memory Multiprocessors,” Sequent Computer Systems, Inc., Beaverton, Oregon, March 1990.
- “TLB Consistency in Highly-parallel Shared-memory Multiprocessors,” IBM, T.J. Watson Research Center, Yorktown Heights, NY, April 1988.
- “TLB Consistency in Highly-parallel Shared-memory Multiprocessors,” BBN Advanced Computers, Inc., Cambridge, Mass., December 1987.

Selected Panels

- Panel Member, “Science Needs & Advanced Computing Trends for the Next Decade,” TACC’s 10th Anniversary Celebration and Colloquium, Texas Advanced Computing Center, Austin, TX, June 24, 2011.
- Panel Member, Preparing STEM Students on HBCU Campuses to Meet Employer/Graduate School Expectations, Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Joint Educational Opportunities for Minorities (JEOM) Research Workshop, June 29-July 1, 2010.
- Panel Member, “SC10 BOF: Developing, Recruiting, and Retaining Women in HPC,” SC10, New Orleans, LA, November 2010.
- Panel Member, FastOS Birds of a Feather Panel, Supercomputing 2004, Pittsburgh, PA, November 2004.
- Panel Member, “Increasing the Enrollment of Women in Computer Science,” 32nd SIGCSE, Technical Symposium on Computer Science Education, Charlotte, NC, February 21-25, 2001.
- Panel Member, “Using Performance Measures to Design Systems,” Supercomputing ’98, Orlando, FLA, November 7-13, 1998.
- Panel Member, “Methodology,” First International Workshop on Software and Performance (WOSP 98), Santa Fe, NM, October 12-16, 1998.
- Panel Member, “Parallel Systems Across Industry, Academia, and the National Laboratories,” Rio Grande ACM Conference, El Paso, TX, March 27, 1998.
- Invited Panel Member and Moderator, “Execution- vs. Trace-driven Simulation,” IEEE International Performance, Computing, and Communication Conference, February 16-18, 1998.
- Panel Member, “Advanced Architectures,” Rio Grande ACM Conference, Los Alamos National Laboratory, October 1, 1993.
- Position Paper Author, “Affinity Research Groups: a Model for Retaining Students in the Computing Sciences” (with A. Gates, N. Delgado, and C. Della-Piana), panel discussion on Women and Minorities in Computing at ISECON ’98, October 1998.

Invited Seminars

- “Parallel Architectures,” Los Alamos National Laboratory-sponsored workshops, Los Alamos National Laboratory, Los Alamos, NM and University of New Mexico, Albuquerque, NM, July 1995, July 1994, January 1994, July 1993, and October 1993.

Invited Workshop Talks

- Invited Participant, IBM Petascale Tools Strategy Workshop, May 2005. (Seetharami Seelam, Ph.D. candidate, was the recipient of a \$500 award to attend this workshop). S. Seelam gave a presentation.

- "On-board Performance Counters: What do they really tell us?," PTools Meeting, University of Tennessee-Knoxville, September 2002.
- "Enabling and Encouraging Student Success in Computing: Affinity Research Groups" (with A. Gates), NSF PI Meeting, Snowbird, Utah, August 2000.
- "Affinity Research Groups: Preparing Students to Meet the Challenges of the New Millennium" (with A. Gates, A. Bernat, N. Delgado, and C. Della-Piana). N. Delgado gave the talk at the New Mexico Network for Women in Science and Engineering Technical Symposium and Annual Meeting, October 1998.
- "Shared-memory Multiprocessor TLB Performance," ISCA '93 Third Workshop on Scalable Shared-Memory Architectures (in connection with the Twentieth International Symposium on Computer Architecture), May 1993.
- "Performance Evaluation of TLB Consistency Schemes via Trace-driven Simulation," ISCA '90 Workshop on Scalable Shared-Memory Architectures (in connection with the Seventeenth International Symposium on Computer Architecture), May 1990.
- "Consistency-ensuring TLB Management and its Scalability," ISCA '89 Workshop on Cache and Interconnect Architectures in Multiprocessors (in connection with the Sixteenth International Symposium on Computer Architecture), May 1989.

Selected Conference and Workshop Talks

- "Performance Profiling and Analysis of DoD Applications Using PAPI and TAU," Users Group Conference 2005, Nashville, TN, June 27-30, 2005.
- "PAPI Deployment, Evaluation, and Extensions," DoD High Performance Computing Modernization Program's User Group Conference 2003, Bellevue, WA, June 2003.
- "Combining Learning Strategies in a First Course in Computer Architecture," Workshop on Computer Architecture Education (WCAE 2003), held in conjunction with The 30th International Symposium on Computer Architecture and 2003 Federated Computing Research Conference, San Diego, CA, June 2003.
- "Using RATs to Motivate Student Learning: from a Computer Science Perspective," The Sun Conference on Teaching and Learning, March 7-8, 2003.
- "Efficiency and Accuracy Issues for Sampling vs. Counting Modes of Performance Monitoring Hardware," (with S. Moore) Department of Defense High Performance Computing Modernization Program, Users Group Conference, Austin, TX, June 10-13, 2002.
- "Combining Learning Strategies to Prepare Student for Upper-level Computer Science Courses," (with M. Roach, M. Maxwell, and M. Nieto) The Sun Conference on Teaching and Learning, March 8-9, 2002.
- "Applying the SSEAL Affinity Research Group Model to Computer Science Research Projects," 2000 Frontiers in Education Conference (FIE 2000), Kansas City, MO, October 18-21, 2000
- "Experimental, Cooperative Labs in a First Course in Computer Architecture," 1997 Frontiers in Education Conference (FIE '97), Pittsburgh, PA, November 1997.
- "Mobil Robots Teach Machine Programming and Organization," Supercomputing '95, San Diego, CA, December 3-8, 1995.
- "Unscheduled Traces and Shared-memory Multiprocessor Simulation," The International Conference on Parallel Processing (ICPP '95), August 14-18, 1995.
- "Memory-based Multiprocessor Translation-lookaside Buffers: Multiple Paging Arenas vs. Large-size TLBs," The International Phoenix Conference on Computers and Communication, Phoenix, AZ, April 1994.
- "Locating Multiprocessor TLBs at Memory," The Twenty-seventh Hawaii International Conference on System Sciences (HICSS '94), January 1994 (Best Paper Award Nominee in Architecture Track).

“TLB Consistency on Highly-parallel Shared-memory Multiprocessors,” The Twenty-First Hawaii International Conference on System Sciences (HICSS ’88), January 1988 (Best Paper Award Nominee).

“Unscheduled Traces and Shared-memory Multiprocessor Simulation,” Transputers ’94: Advanced Research and Industrial Applications, France, September 1994.

Selected Other Presentations

“What Does it Take to Complete a Dissertation?”, April 4, 2008, CS Department Colloquium.

“PAPI: “DynaMICs Snoopy Coprocessor System,” Sandia National Laboratories, October 1999.

“Applications: Computer Science,” National Science Foundation/CONACYT-Internet II Connection Meeting, February 24, 1999

“Internet2 and Research: an Idea Session” (with P. Maxwell and A. Gates), May 20, 2000.

“Affinity Model for Research,” NASA Day at the University of Texas at El Paso, October 14, 1999.

“Parallel Discrete Event Simulation,” The University of Texas at El Paso, Department of Computer Science colloquium, February 27, 1998.

Refereed or Invited Posters

Arunagiri, S., J. Daly, P. Teller, and **R. Portillo**, “Using Mathematical Modeling to Enhance the Scalability of Checkpointing Applications”. Poster presented by Sarala Arunagiri at *The 2010 DOE Applied Mathematics Program Meeting*, Berkeley, CA, May 3-4, 2010. (Invited)

Meswani, M. R., P. J. Teller, and S. Arunagiri, “Improved Throughput of Simultaneous Multithreaded (SMT) Processors using SMT Thread Signatures and Hardware Thread Priorities,” 10th LCI International Conference on High-Performance Clustered Computing (LCI’09), Boulder, CO, March 2009. (Refereed)

Arunagiri, S., **Yipkei Kwok**, Patricia J. Teller, and Seetharami Seelam, “An I/O Scheduling Algorithm for Storage Performance Virtualization,” 10th LCI International Conference on High-Performance Clustered Computing (LCI’09), Boulder, CO, March 2009. (Refereed)

D. Flores, D., T. Estrada, M. Taufer, P. Teller, and A. Kerstens. “SimBA: a Discrete Event Simulator for Performance Prediction of Volunteer Computing Projects”. Poster at *The 19th International Conference for High Performance Computing, Networking, Storage and Analysis (SC06)*, Tampa, FLA, November 2006. (Refereed)

P. Teller, **A. Bayona**, and **M. Nieto**, “Hardware Performance Counters: Is What You See, What You Get?”, *The 16th International Conference for High Performance Computing, Networking, Storage and Analysis (SC03)*, Phoenix, AZ, November 2003. (Refereed)

“POEMS: Performance Oriented End-to-end Modeling of Highly Parallel Computer and Communication Systems,” Supercomputing ’97, San Jose, CA, November 1997. (Refereed)

Recent Research Exhibit Posters (Shared exhibit with University of New Mexico, New Mexico Computing Applications Center (NMCAC), New Mexico Institute of Technology, New Mexico State University (until 2010), Arizona State University (in 2007), the University of Oklahoma (since 2007), and Navajo Technical College (in 2010) to compute HPC-enable research at UTEP)

The 23rd International Conference for High Performance Computing, Networking, Storage and Analysis (SC10), New Orleans, LA, November 13-19, 2010.

Portillo, R., S. Arunagiri, and P. Teller, *Embedded High-end Computing in Mobile Tactical Radar Systems - Power versus Execution-Time Performance Tradeoffs*.

Arunagiri S., **Y. Kwok**, S. Seelam, P. Teller, and **R. Portillo**, *FAIRIO: An Algorithm for Differentiated I/O Performance*.

Kwok, Y., J. McCartney, S. Arunagiri, and P. Teller, *GPGPU Programming Approach Productivity Comparisons - CUDA vs. OpenCL vs. PGI*.

The 22nd International Conference for High Performance Computing, Networking, Storage and Analysis (SC09), Portland, OR, November 2009.

Teller, P., S. Arunagiri, and **R. Portillo**, *Coordinating I/O in Petascale Systems – Judicious Checkpointing and I/O Quality of Service*.

Teller, P., S. Arunagiri, **Y. Kwok**, **M. Meswani**, and **R. Portillo**, *Enhancing the Capabilities of Army Field-deployable and On-board Computer Systems through the Use of Accelerators*.

Teller, P., S. Arunagiri, **Y. Kwok**, and S. Seelam, *Simple Admission Control Algorithm (SACA) for Differentiated Service*.

Meswani, M., P. Teller, and S. Arunagiri, *Improved Throughput of SMT Processors using Shareable Resource Signatures and Hardware Thread Priorities*.

The 21st International Conference for High Performance Computing, Networking, Storage and Analysis (SC08), Austin, TX, November 2008.

Teller, P., S. Arunagiri, and **Y. Kwok**, *Chimera – a Heterogeneous Cluster* (also exhibited at the AHPCRC Research Exhibit Booth).

Meswani, M., P. Teller, and S. Arunagiri, *Improved Throughput of SMT Processors using Application Signatures and Hardware Thread Priorities*.

Teller, P., **R. Portillo**, D. Cronk, S. Moore, D. Terpstra, S. Shende, A. Maloney, A. Morris, and W. Spear, *Analyzing Code Performance within the Eclipse IDE*.

Kwok, Y., P. Teller, and **G. Lopez**, *Floating-point Standard Conformance in Global Computing*.

Teller, P., and **P. Trillo**, *The NSF SHIPPER Project: Spreading High Performance computing Participation in undergraduate Education and Research*.

Multiple posters were exhibited in the 17th-20th *International Conference for High Performance Computing, Networking, Storage and Analysis (SC04-SC07)*, Pittsburgh, PA, Seattle, WA, Tampa, FL, and Reno, NV, November 2004-2007.

Student Presentations/Posters

Each year several of my students present posters at UTEP events, e.g., the UTEP Student Research Exposition; these are not listed below.

M. Meswani, “Improving Throughput of SMT Processors using Application Signatures and Thread Priorities,” talk presented at the SC08 Doctoral Showcase, The International Conference on High Performance Computing, Networking, Storage and Analysis, Austin, TX, November 15-21, 2008. (acceptance rate: appx. 20%).

L. Rauda (Advisors: A. Gates and P. Teller), “A Parallel Discrete-event Simulation of a DynaMICS Snoopy Coprocessor System,” the Thirteenth National Conference on Undergraduate Research, Rochester, NY, April 1999.

M. Maxwell (Advisors: P. Teller and A. Gates), “An Initial Design of a Coprocessor/Snoopy Hardware Integrity Constraint Monitoring Simulator,” ITEA Workshop, Modeling and Simulation (Establishing Seamless, Distributed and Integrated Solutions to Real-World Problems), Las Cruces, NM, December 7-10, 1998.

N. Delgado, D. Fox, and S. Medina (Advisors: A. Gates and P. Teller), “Towards an Electronic Framework Supporting Affinity Group Projects: Program Coordination, Communication, and Common Goal Tool for Teams,” talk at Rio Grande ACM Meeting, El Paso, TX, El Paso, TX, March 27, 1998.

FUNDING

FUNDED GRANTS

Research Grants

“I/O Coordination to Improve HEC System Performance: A Marriage of Analytical Modeling, Control Theory, and Differentiated I/O Performance”, PI: P. Teller (Co-PI: S. Arunagiri), US Department of Energy, Award #DE-SC0001768, September 2009-September 2012, **\$651,626**.

“Deployment and Enhancement of Integrated Development Environments”, PI: P. Teller, Mississippi State University for Department of Defense, HPCMO, PET Program, CE-KY8-002, June 2008-May

- 2009, **\$75,000** (UTEP). (Collaboration with University of Tennessee-Knoxville and ParaTools (University of Oregon))
- “Specifying Computer Systems for Field-Deployable and On-Board Systems,” originally “Simulation and Modeling to Enhance the Performance of Systems of Multicore Processors,” Army Research Lab, June 2007-December 2011, **\$1,159,958 (\$953,958 Research; \$150,000 Education and Outreach; \$56,000 Travel)**.
- “Project 4-3: Specifying Field-Deployable and On-Board Computer Systems,” PIs: P. J. Teller and S. Arunagiri, January 1, 2011-December 31, 2011, **\$226,600**.
- “Management and Administration – Other Direct Costs and Travel,” PI: P. J. Teller, January 1, 2011-December 31, 2011, **\$8,500**.
- “Project 4-3: Specifying Field-Deployable and On-Board Computer Systems,” PIs: P. J. Teller and S. Arunagiri, January 1, 2010-December 31, 2010, **\$220,000**.
- “Management and Administration – Other Direct Costs and Travel,” PI: P. J. Teller, January 1, 2010-December 31, 2010, **\$20,500**.
- “Project 4-3: Simulation and Modeling to Enhance the Performance of Systems of Multicore Processors,” PI: P. J. Teller, January 1, 2009-December 31, 2009, **\$178,006** (UTEP). (Allocated appx. \$85,000 to NMSU)
- “Management and Administration – Other Direct Costs and Travel,” PI: P. J. Teller, January 1, 2009-December 31, 2009, **\$8,500**.
- “Project 4-3: Simulation and Modeling to Enhance the Performance of Systems of Multicore Processors,” PI: P. J. Teller, January 1, 2008-December 31, 2008, **\$219,094** (UTEP). (Allocated appx. \$65,000 to NMSU)
- “Management and Administration – Other Direct Costs and Travel,” PI: P. J. Teller, January 1, 2008-December 31, 2008, **\$13,500**.
- “Project 4-3: Simulation and Modeling to Enhance the Performance of Systems of Multicore Processors,” PI: P. J. Teller, June 1, 2007-December 31, 2007, **\$110,258**.
- “Management and Administration – Other Direct Costs and Travel,” PI: P. J. Teller, June 1, 2007-December 31, 2007, **\$5,000**.
- “Simplifying Performance Tool Usage in Eclipse IDE”, PI: P. Teller, Mississippi State University for Department of Defense, HPCMO, PET Program, CE-KY8-002, June 2007-May 2008, **\$71,169** (UTEP). (Collaboration with University of Tennessee-Knoxville and ParaTools (University of Oregon))
- “Scalable I/O, Design of Supercomputers through Simulation, and Operating Systems Research”, PI: P. Teller, Sandia National Laboratories, PR# 882412, January 1, 2007-October 31, 2007, **\$60,000**.
- “Making Performance Analysis and Tuning Part of the Development Cycle”, PI: P. Teller, Mississippi State University for Department of Defense, HPCMO, PET Program, June 2006-May 2007, **\$30,000** (UTEP). (Collaboration with University of Tennessee-Knoxville and University of Oregon)
- “Collaborative Research: DAPLDS-a Dynamically Adaptive Protein-Ligand Docking System based on Multi-scale Modeling”. PI: M. Taufer, Co-PI: P. Teller, National Science Foundation (NSF), **\$1,120,000 (\$655,626 UTEP)**, September 2005-August 2009 (one-year extension). (Collaboration with The Scripps Research Institute and University of California-Berkeley) – Note that after Dr. Taufer went to University of Delaware, a subcontract for **\$53,023** was awarded to Teller to continue the collaboration for approximately one year, April 2008-August 2009.
- “Unification of Verification and Validation Methods for Software Systems”, PI: Y. Cheon, Co-PI: P. Teller, NSF, CISE, CNS Computer Systems, September 2005-August 2009 (one-year extension), **\$167,999** (UTEP). (Collaboration with UT-Austin)

- “Comprehensive Memory Performance Studies of IBM POWER-based Platforms – Phase 2,” PI: P. Teller, IBM Faculty Award, **\$40,000**, August 2005-August 2006.
- “Automated Performance Data Collection, Management, and Analysis,” Department of Defense via a subcontract from Mississippi State University, \$240,000 total, **\$90,000** UTEP, June 2005-May 2006. (Collaboration with University of Tennessee-Knoxville and Howard University)
- “DAiSES: Dynamic Adaptability in Support of Extreme Scale Systems”, PI: P. Teller, Department of Energy, Office of Science, FASTOS Program, September 2004-August 2008 (one-year extension), **\$1,500,000** (\$737,999 subcontract to University of Wisconsin-Madison).
- “Comprehensive Memory Performance Studies of IBM POWER-based Platforms,” PI: P. Teller, IBM Faculty Award, **\$40,000**, August 2004-August 2005.
- “Collection and Validation of Application Benchmarking and Performance Data,” Mississippi State University for Department of Defense, **\$60,548** (UTEP), June 2004-May 2005. (Collaboration with University of Tennessee-Knoxville)
- “Multivariate Statistical Analysis of Large Scale Performance Data,” Mississippi State University for Department of Defense, **\$56,725** (UTEP), June 2004-May 2005. (Collaboration with University of Tennessee-Knoxville)
- “Third Year – Department of Defense High Performance Computing Modernization Program (HPCMP) and Programming Environment and Training (PET), PAPI Deployment, Evaluation, and Extensions”, **\$62,120** (UTEP), October 2003-October 2004. (Collaboration with University of Tennessee-Knoxville)
- “A General Method of Generating Miss Rate Information for Future Systems – Phase 2, Exploring the p690 Memory Hierarchy,” PI: P. Teller, IBM Faculty Award, **\$40,000**, August 2003-August 2004.
- “A General Method for Generating Miss Rate Information for Future Systems,” PI: P. Teller, IBM Faculty Award, **\$25,000**, August 2002-August 2003.
- “Collaborative Research: Performance-Driven Adaptive Software Design and Control”, National Science Foundation, CISE, New Generation Software Program, **\$295,346** (UTEP), September 2001-January 2005 (six-month extension). (Collaboration with University of Illinois-Urbana-Champaign, UCLA, University of Texas at Austin, Purdue University, University of Wisconsin-Madison, and Argonne National Laboratory)
- “Second Year - DoD High Performance Computing Modernization Program (HPCMP) and Programming Environment and Training (PET), PAPI Deployment, Evaluation, and Extensions”, Mississippi State University for Department of Defense, **\$62,076**, October 2002-October 2003. (Collaboration with University of Tennessee-Knoxville)
- “DoD High Performance Computing Modernization Program (HPCMP) and Programming Environment and Training (PET), PAPI Deployment, Evaluation, and Extensions”, Mississippi State University for Department of Defense, **\$71,000**, October 2001-October 2002. (Collaboration with University of Tennessee-Knoxville and Pittsburgh Supercomputing Center)
- “Design of a Prototypical Snoopy Coprocessor for Dynamic Software Fault Monitoring with Integrity Constraints” (with A. Gates), Sandia National Laboratories, **\$24,978**, May 1999-August 1999.
- “A Functional Parallel Discrete Event Simulation of a Snoopy Coprocessor for Software Monitoring with Integrity Constraints” (with A. Gates), Sandia National Laboratories, \$20,000, June 1, 2000-August 31, 2000.
- “A Case Study in Model-Based Control of an Adaptive Application”, PI: J. Browne, UT-Austin, National Science Foundation, CISE, NGS Program, **\$300,000** total/**\$36,836** (UTEP), subcontract from UT-Austin, February 2000-December 2000 (subcontract received September 2000, therefore, automatic six-month extension). (Collaboration with The University of Texas at Austin, UCLA, University of Illinois-Urbana-Champaign, Purdue University, and University of Wisconsin-Madison)

- “PerfOrmancE Modeling System (POEMS)”, PI: J. Browne, with J. Browne, UT-Austin, DARPA, DARPA/ITO Grant No. N66001-97-C-8533, **\$1,839,517** total/**\$272,141** (UTEP), subcontract from UT-Austin, August 1997-December 2000 (with six-month extension). (Collaboration with UT-Austin, UCLA, Rice University, Purdue University, and University of Wisconsin-Madison).
- “Verification of NASA Mission-Critical Software Without Sacrificing Performance” (with A. Gates), NASA FY 1997 Partnership Awards with Minority Institutions, Grant No. NAG 2 1138, **\$199,887**, July 1997-June 2001 (with one-year extension).
- “Data Compression,” PI: P. Teller, EG&G Management Systems, Inc., **\$14,798**, August 1995-May 1996.
- “Multiprocessor TLB Performance Study,” PI: P. Teller, Sandia National Laboratories’ Sandia/University Research Program, **\$35,000**, December 1993-September 1994.
- “Multiprocessor Performance Evaluation,” PI: P. Teller, Sandia National Laboratories’ Sandia/University Research Program, **\$30,000**, October 1992-September 1993.

Physical Infrastructure Grants

- “Proposal to the AHPCRC Research and Infrastructure Development Program: Pegasus: a GPGPU Research Adventure Playground,” PIs: P. J. Teller and S. Arunagiri, High Performance Technologies, Inc., December 13, 2010-December 31, 2011, **\$122,243**. (To purchase a state-of-the-art heterogeneous multicore/GPGPU (General-Purpose Graphics Processing Unit) cluster and five isolated research nodes with GPGPUs and Solid-State Drives (SSDs), to enhance the capabilities of UTEP’s Army High Performance Computing Research Center (AHPCRC) Laboratory and to support two UTEP AHPCRC-funded research projects (TA4-3 and TA4-6), further develop the expertise of 10-15 students currently involved in AHPCRC-funded research at UTEP, and provide opportunities for students in the colleges of engineering and science to learn about and use multicore processors and GPGPUs for simulation and modeling.
- “Chimera”, heterogeneous multiprocessor, Fall 2009, over **\$250,000** value.
- University of Texas System 2004-2005 STAR (Science and Technology Acquisition and Retention) Program award for research infrastructure, **\$483,000**, January 2005.
- “Performance via Autonomicity, Analysis, Virtualization, and Micro-partitioning, and Research in Life Sciences and Bioinformatics,” with S. Aley, L. Bain, W. Baldwin, F. Modave, M.-Y. Leung, P. Nava, M. Taufer, and D. Villa, IBM SUR (Shared University Research) Grant, over **\$600,000** retail value, May 2005.
- “HPC PEARLS, Performance Enhancements And Research in the Life Sciences” with S. Aley, L. Bain, W. Baldwin, S. Das, B. Stec, P. Nava, D. Williams, and D. Villa, IBM SUR (Shared University Research) Grant, **\$562,327**, July 2003.
- Subcontract from UT-Austin’s NSF EIA-CISE Research Infrastructure award, “Mastadon: A Large-Memory, High-Throughput Simulation Infrastructure,” **\$83,300**, June 2003.
- “Teaching Java by Computer Science Faculty” (with D. Novick), Sun Microsystems, Inc. Academic Equipment Grant Application, approximately **\$60,000** matching funds, September 2000.
- “Where We Are – Where We Would Like to Be” (with A. Gates), The University of Texas at El Paso, VPAA’s office, appx. **\$15,000** of laboratory renovation work and furniture, 1998.
- “Where We Are – Where We Would Like to Be” (with A. Gates), Technology and Communications Gateway (TCG), **\$500** of electrical work, April 1998.
- “Where We Are – Where We Would Like to Be” (with A. Gates), The University of Texas at El Paso, Networking and Telecommunication Services, appx. **\$6,000** of laboratory networking, 1998.
- “A Multiprocessor Platform for Cross-Disciplinary Research in Parallel Systems” (with A. Gates, and D. Cooke), NSF Instrumentation Grants for Research in CISE, Grant No. EIA-9729990, **\$71,261**, December 1997-November 1998.

“End-to-End Measurement, Modeling and Simulation of Parallel/Distributed Computer Systems” (with J. Browne, C. Chase, and L. John, The University of Texas at Austin), IBM SUR Grant, UTEP: one RS-6000 workstation, **\$11,500**, December 1997.

Sun Microsystems, Inc., **\$1,000**, April 1997.

Intel Corporation, Pentium-Pro Workstation, **\$7,862**, January 1997.

“Reduction of Processor-Memory Traffic in Global Memory Multiprocessors,” US Army Research Office (with E. Johnson), **\$98,385**, July 1993.

Motorola, Inc., over **\$3,000** in equipment and manuals to support innovative, hands-on course in machine organization and assembly language, New Mexico State University.

Education Infrastructure, Curriculum, and Outreach Grants

“AHPCRC Education and Outreach – University Summer Programs,” PI: P. J. Teller, January 1, 2011-December 31, 2011, Army High Performance Computing Research Center, Army Research Lab via HPTi, **\$30,000**.

“AHPCRC Education and Outreach – University Summer Programs,” PI: P. J. Teller, January 1, 2010-December 31, 2010, Army High Performance Computing Research Center, Army Research Lab via HPTi, **\$30,000**.

“AHPCRC Education and Outreach – University Summer Programs,” PI: P. J. Teller, January 1, 2009-December 31, 2009, Army High Performance Computing Research Center, Army Research Lab via HPTi, “Outreach to Middle-School Students for STEM Education, **\$90,000**. (Collaboration with D. Novick)

“SHiPPER: Spreading High Performance Computing Participation in Undergraduate Education and Research”, PI: P. Teller, NSF, September 2006-January 2012 (one-year extension), **\$275,855**.

“DoD High Performance Computing Modernization Program (HPCMP) and Programming Environment and Training (PET), White Paper in response to HPCMP Broad Agency Announcement dated 20 December 2000” (with V. To, HPTi, C. Pancake, Northwest Alliance for Computational Science and Engineering and Oregon State University, E. DeLoach, Morgan State University, J. Huskamp, E. Carolina University, and R. Roskies, Pittsburgh Supercomputing Center), Subcontractor to HPTi, UTEP: \$28,804, June 2003-May 2004; \$17,320, June 2002-May 2003; **\$40,537**, June 2001-May 2002.

“Proposal to Model Institutions of Excellence Program for Development and Implementation of a New Computer Architecture Course Sequence” (with S. Roach), UTEP’s MIE Program, \$35,000.

“Graduate Education for Minority Students in Computer Science and Engineering: Extending the Pipeline” (with D. Novick, A. Gates, and S. Cabrera), NSF CISE Research Infrastructure (EIA 0080940), **\$1,254,056**, September 2000-September 2005.

As part of the Model Institutes of Excellence (MIE) grant renewal, National Science Foundation, integrate the Affinity Group Model into the undergraduate research programs in the Colleges of Engineering and Science, one-month funding for summer 2001, 2002, and 2003.

“CISE Minority Institutions Infrastructure: Building Affinity Groups to Enable and Encourage Student Success in Computing” (with A. Bernat, A. Gates, and S. Cabrera), NSF Grant No. EIA-9522207, **\$971,160**, September 1995-August 2001 (with one-year extension).

“Cache and TLB Performance in Shared-memory Multiprocessors,” Los Alamos National Laboratory, \$12,000, November 1992. (supported Vincent Lambert, visiting student from Institut National des Télécommunications, France)

“Development of an Innovative, Hands-on Course in Machine Programming and Organization,” New Mexico State University’s Arts and Sciences Minigrant, **\$1,250**, June 1992.

Student Advancement Grants/Internships

Esthela Gallardo and Joshua McCartney, AHPCRC Summer Internship at the Army Research Lab, Aberdeen Proving Ground, MD (12-week internship plus travel and housing). Esthela’s work was recognized at the culmination of the AHPCRC Summer Institute.

Francis Onate, Summer Internship at the Army Research Lab., Aberdeen Proving Ground, MD.
Ana Quevedo, Jose Segura, Adriana Contreras, and Joel Quintana, AHPCRC Summer Institute for Undergraduates in Computational Science and Engineering at Stanford University (8-week program, \$4,000 stipend plus travel, housing, and meals), June-August 2010. Adriana, Ana, Jose, and Abimbola Akinmeji, Morgan State University, received the AHPCRC Summer Institute Best Project Award for their project “Realtime Simulation and Visualization of PhysBAM on Android.” They were mentored by Elliott English, Michael Lentine and Ron Fedkiw of Stanford University.

The objectives of the Institute were to provide training and hands-on experience in the use of computational techniques for science and engineering students, and to prepare those who choose to pursue graduate studies in technology areas dependent upon computational science and engineering. The program curriculum combined short courses in computational engineering methods concentrating on structural mechanics, fluid dynamics, and computer programming for parallel clusters, with a research experience working with one of the AHPCRC research groups at Stanford University.

Esthela Gallardo, CAHSI Mentor-Grad Program Awardee (\$2,000 stipend), Spring 2010.

Edgar Caballero, Esthela Gallardo, and Joshua McCartney (along with Jennifer Kuchle from the Department of Mechanical Engineering), AHPCRC Summer Institute for Undergraduates in Computational Science and Engineering at Stanford University (8-week program, \$4,000 stipend plus travel, housing, and meals), June 21-August 13, 2010.

Jason Shultes, SC09 Student Volunteer (SC09 is The 22nd International Conference on High Performance Computing, Networking, Storage, and Analysis, which was held in Portland, OR) *A Student Volunteer receives conference housing, some meals, and conference registration in exchange for working approximately 20 hours towards the support of the week-long conference. Special activities include a job fair and a mentor at the conference.*

Edgar Padilla and Essau Ramirez, AHPCRC Summer Institute for High Performance Computing at Stanford University (8-week program, \$4,000 stipend plus travel, housing, and meals), June 22-August 14, 2009.

Ricardo Portillo, Summer Internship, Oak Ridge National Laboratory, Summer 2009.

Ricardo Portillo, 2009 Hispanic College Fund Scholar, sponsored by the Google Scholarship Program (\$10,000 academic scholarship plus tuition and all-expenses paid trip to the Google Headquarters in California in 2010), June 2009.

Princess Trillo, ITEA Best Undergraduate Student Paper Award (\$1,000 Scholarship) for “A Study of the Influence of the POWER5 Dynamic Resource Balancing Hardware on Optimal Hardware Thread Priorities,” P. C. Trillo, M. R. Meswani, P. J. Teller, and S. Arunagiri, January 2009.

Princess Trillo, Maria Varela Ruiz, and Yipkei Kwok, SC08 Student Volunteers (SC08, Austin, TX) Mitesh Meswani, Dodson Ph.D. Fellowship (\$7,500), 2008 (used in Spring 2009).

Ricardo Portillo, Summer Internship, Sandia National Laboratories, Summer 2008.

Maria Varela Ruiz, Conacyt Ph.D. Fellowship, 2007-2009.

Princess Trillo, Alaska Research Challenge 2008 (Undergraduate) Summer Internship at the Arctic Region Supercomputing Center.

Ricardo Portillo, Summer Internship, Sandia National Laboratories, Summer 2007.

Maria Varela Ruiz, Summer Internship, Sandia National Laboratories, Summer 2007.

Seetharami Seelam, Ph.D. Candidate, Invited Participant, IBM Petascale Tools Strategy Workshop, May 2005 (\$500 award to attend this workshop and give a presentation).

Jaime Nava and Nidia Pedregon, DoD High Performance Computing Modernization Office, all-expenses paid participants in the PET Program University of Hawaii Summer Institute, July 25-August 5, 2005.

Maria Gabriela Aguilera, 2004 Google Anita Borg Memorial Scholarship Recipient (\$10,000 academic scholarship, all-expenses paid trip to Google and all-expenses paid attendee at Grace Hopper Conference).

Seetharami Seelam, Internships, IBM-T.J. Watson Research Center, Spring/Summer 2003, Summer 2004, and 2005.

Diana Villa, IBM-Austin Summer Internship, Summer 2003, 2004, and 2005.

Diana Villa, NPSC/IBM Ph.D. Fellowship, 2003-2007 (\$16,000/year, summer internship at IBM-Austin, and tuition for four years), March 2003.

Ricardo Portillo, Internships, Lawrence Livermore Laboratory, Fall 2002 and Summer 2003.

Trevor Morgan, IBM-Austin Summer Internship, 2002.

Alonso Bayona, REU Undergraduate Research Award, Spring and Fall 2002 and 2003 (\$375/month).

Trevor Morgan, REU Undergraduate Research Award, Spring and Fall 2001 (\$375/month).

Ricardo Portillo, REU Undergraduate Research Award, Fall 2001 (\$375/month).

Wendy Korn, REU Undergraduate Research Award, Spring 1999 (\$750/month).

Marcos Villareal, REU Undergraduate Research Award, Fall 1999 (\$750/month).

Jeanine Cook, Graduate Student, The Grace Hopper Celebration of Women in Computing Scholarship (\$730).

Undergraduate Research Assistantship Award, New Mexico Alliance for Minority Participation, \$1,000, September 1995-September 1996.

Computational Resource Time Allocations

Texas Advanced Computing Center (TACC), 1,000 SUs on each of Spur, Longhorn, and Stallion, January 1, 2011-December 31, 2011.

Texas Advanced Computing Center (TACC), 25,000 SUs on Ranger, October 1, 2010-September 30, 2011.

EDUCATION

STUDENTS (The majority of the students who have worked under my supervision have been supported via external funds.)

Doctoral Students

The University of Texas at El Paso

In Progress:

Yipkei Kwok, post-quals.

Ricardo Portillo, comprehensive exam scheduled for 23 August 2011.

Alan Taylor, post-quals – co-advising with Patricia Nava, ECE.

Kathleen Downey, pre-quals. (Spring 2009-present)

Graduated:

Meswani, Mitesh R., “Improving Throughput of Simultaneous Multithreaded (SMT) Processors using Shareable Resource Signatures and Hardware Thread Priorities, Ph.D. Dissertation, Computer Science, December 2009. (Researcher, San Diego Supercomputing Center)

Seetharami Reddy Seelam, “Towards Dynamic I/O Scheduling in Commodity Operating Systems”, Ph.D. Dissertation, Computer Engineering, May 2006. (Staff Member, IBM TJ Watson Research Center)

New Mexico State University

Keith R. Bisset, Ph.D., “Adaptive and Ideal Synchronization Algorithms for Parallel Discrete Event Simulation”, Ph.D. Dissertation, Computer Science, December 1998. (Senior Research Associate,

Network Dynamics and Simulation Science Laboratory, Virginia Bioinformatics Institute at Virginia Tech)

Richard Oliver, Ph.D., “Process Execution Characteristics and their Use in Memory Hierarchy Design”, Ph.D. Dissertation, Computer Science, August 1997. (Associate Professor of Information Systems, NMSU, College of Business)

Masters Students

The University of Texas at El Paso

In Progress:

Bidisha Chakraborty (Fall 2010-present)

Aritra Dattagupta (Summer 2011-present)

Michael Harney (Fall 2009-present)

Victor Jordan (Summer 2010-present)

Upcoming:

Joshua McCartney (Fall 2011)

Enrique Portillo (Summer 2011)

Graduated:

Muthuveer Somanathan, Thesis: *An Initial Operating System Adaptation Heuristic for Swap Cluster Max (SCM)*, Computer Science, August 2008. (Microsoft)

Ricardo Portillo, Thesis: *Fine-grain Dynamic Adaptation of the Linux 2.6 Virtual Memory Manager*, Computer Science, Summer 2006. (Ph.D. Candidate, UTEP)

Jayaraman Suresh Babu, Thesis: *Coarse-Grain Dynamic Adaptation for Asynchronous I/O Scheduling: Is it needed?*, Computer Science, May 2006. (Cisco)

Maria Gabriella Aguilera, Thesis: *A Case Study of Communication Trace Performance Evaluation Guided by Hierarchical Clustering*, Computer Science, June 2005. (Google)

Ketan Maydeo, Thesis: *Performance Evaluation of TLB Consistency Solutions in Large-Scale Shared-Memory Multiprocessors with Consistent Caches*, May 2005. (XIMIS)

Gary Rybak, Thesis: *Mathematical Modeling for Dynamic Application Steering*, December 2004.

Diana Villa, Thesis: *Using Sampled Performance Monitor Event Traces to Characterize Application Behavior*, December 2003.

Manuel Nieto, Thesis: *Visual 6811: A Simulator of the Motorola 68HC11 Microprocessor Architecture*, July 2003. (XIMIS)

Leonardo Salayandia, Thesis: *A Study of the Validity and Utility of PAPI Performance Counter Data*, December 2002. (Ph.D. Candidate, UTEP)

Charanjiv Sachar, Project: *A Model for Predicting the Execution Time of Sweep3D*, July 2000. (Intel Corporation)

Gilbert Castillo, Project: *A Feasibility Study on the Use of the MIPS R10000 Processor Performance Counters*, January 4, 2000. (IBM-Austin)

Jaideep Moses, Project: *Determination of Sweep3D's Reported Processor Utilization Using SimpleScalar Configured as a PowerPC 604e*, August 1999. (Intel Corporation)

New Mexico State University

James Williams, “A Methodology for Linux as a User Process Based on Solaris Minix on the Sparc Architecture,” thesis, August 1997.

Ward P. McGregor, “Unix-like System Calls Analysis,” thesis, June 1997.

Jiangang Xing, “Improving Throughput by Saving and Restoring TLBs: a Simulation Study,” project, August 1994.

Hugo Molina Salgado, “Parallel Simulation of Multiprocessor Caches,” project, April 1994.

Qidong Xu, “A Trace-driven Simulation Study of MIMD Shared-memory Multiprocessors,” thesis, 1993.

Other Graduate Students Involved in Research

Afolami Akinsanmi (Fall 2001, Spring 2002)

Oscar Andrade (Summer 2009)

Roberto Araiza (2003-2006)

Karla Castillo (Spring 2001)

Uphaar Goyal (2008-2010)

Mehmet Guler

Michael Maxwell

Jose Luis Ortiz

Rohit Seth (Spring and Fall 2001)

Juan Ulloa

Maria Varela Ruiz (2006-2009)

Ph.D. Committees

The University of Texas at El Paso

Damain Valles, Department of Electrical and Computer Engineering, 2009-present. (Chair: Dr. David Williams)

Ameet Chavan, Department of Electrical and Computer Engineering, *A Subthreshold Reconfigurable Architecture for Harsh Environments*, 2010. (Chair: Dr. Eric MacDonald)

Richard Zamudio, Department of Computer Science, *TOPAZ: A Firefox Protocol Extension for GridFTP*, January 2006. (Chair: Dr. Michela Taufer)

Rodrigo A. Romero, Department of Electrical and Computer Engineering, *Dedicated Distributed Memory Servers*, 2004. (Chair: Dr. David H. Williams)

Yahya Zakaria Alawneh, Department of Electrical and Computer Engineering, *Dynamic Pipeline Network Optimization*, May 2002. (Chair: Dr. Glenn A. Gibson; Co-Chair: Dr. Mehdi Shadaram)

New Mexico State University

Ram Srinivasan, Department of Electrical and Computer Engineering, *A Monte Carlo Approach to Modeling Processor Performance*, 2007. (Chair: Dr. Jeanine Cook).

Phillip Dijang, Department of Industrial Engineering, 1998. (Chair: Dr. Paul Finch)

James D. Jones, Department of Computer Science, 1996.

Roy Moore, Department of Electrical and Computer Engineering, Ph.D. Comprehensive, February 1993. (Dr. Eric Johnson)

University of New Mexico

Edgar Leon, Department of Computer Science, *Improving the Performance of Parallel Scientific Applications using Cache Injection*, March 2009 (Chair: Dr/ Barney MacCabe)

Selected Master's Committees

The University of Texas at El Paso

Ameet Chavan, Department of Electrical and Computer Engineering, July 2003. (Chair: Dr. P. Nava, thesis)

Rajesh Molakaseema, Department of Computer Science, December 2002. (Chair: Dr. B. d'Auriol, thesis)

Edgar Saenz, Department of Computer Science, 2001. (Chair: B. d'Auriol, project)

Hector Garces, Department of Electrical and Computer Engineering, Intelligent Manger for Distributing Generic Computations, May 2001. (Chair: Dr. G. Lush, thesis)
Aaron S. Hardesty, Department of Computer Science, *From Diablo to Nomad: a Reactive Design for Complex Environments*, December 4, 2000. (Chair: V. Kreinovich, project)
Gustavo Breceda, Department of Electrical and Computer Engineering, November 28, 2000. (Chair: Dr. P. Nava, course work/seminar papers)
Ganapathi Adimurthy, Department of Computer Science, Analyzing Control Flow Graphs for Automated DynaMICs Software Fault Monitoring, November 21, 2000. (Chair: Dr. A. Gates, project)
Ken Chen, Department of Computer Science. December 10, 1999. (Chair: Dr. A. Gates, project)
Francisco Villarreal, Department of Computer Science, *Software Documentation Management System*, July 12, 1999. (Chair: Dr. A. Gates, project)
Shuiqing Li, Department of Computer Science, *Towards Analyzing Executable Files with EEL for a DynaMICs System*, May 24, 1999. (Chair: Dr. A. Gates, project)
Mohammed K. Fasiuddin, Department of Electrical and Computer Engineering, *Ethernet & Token Ring Advantages and Disadvantages*, November 1998.

New Mexico State University

Srinivasa Tatineni, Department of Electrical and Computer Engineering, July 1994.
Favinder Thota, Department of Electrical and Computer Engineering, April 1994.
Laurel Deibel, Department of Computer Science, April 1994.
Natalija Krivokapic, Department of Computer Science, December 1993.
Ding Ma, Department of Electrical and Computer Engineering, November 1993.
Sudhanshu Das, Department of Electrical and Computer Engineering, November 1993.
Eric Iverson, Department of Computer Science, October 1993.
Ji-Heng Ha, Department of Electrical and Computer Engineering, March 1993.
Wilber Johnson, Department of Computer Science, November 1992.

Undergraduate Students involved in Research and Outreach

The University of Texas at El Paso - *Started as Undergraduate Students, continued to Graduate School

Jaime Acosta (Fall 2002 and Spring 2003)*
Brian Bandy (Fall 1997, Spring, Summer, and Fall 1998)*
Alonso Eloy Bayona (Spring 2002-present)
Arturo Caraveo (Spring and Summer 1997)
Alejandro Castaneda (Summer and Fall 2005, Spring 2006)
Robert Calder (Fall 1997)
Fernando Cervantes (Fall 2010-present)
Juan Chacon (Summer 1998 - Summer Computer Animation Workshop)
Margarita Faudoa (Spring and Summer 1997)
Esthela Gallardo (Spring 2010-present)
Mehmet Guler (Fall 1997)*
Ricardo Herrera (Spring 1998)
Victor Jordan Barazza (Summer 2009-Spring 2010)*
Chris Kirby (Fall 2001, Spring 2002)
Wendy Korn (Summer 1998 - Summer Computer Animation Workshop, Spring, Summer and Fall 1999, Spring, Summer and Fall 2000)
Roxanne Martinez (Fall 2000)
Mike Maxwell (Spring and Fall 1997 and Spring, Summer, and Fall 1998 - Summer Computer Animation Workshop Spring 1999, Summer 1999, Fall 1999, Spring 2000)*

Joshua McCartney (Spring 2010-present)
Hector Mendoza (Spring 2001)
Trevor Morgan (Fall 1999, Spring, Summer and Fall 2000, Spring, Summer and Fall 2001, Spring and Fall 2002)
Fernando Nava (Summer 2009)
Jaime Nava (Spring, Summer, and Fall 2005, and Spring 2006)*
David Nevarez (Summer 1998 - Summer Computer Animation Workshop)
Gustavo Nieto (Spring 2002 - present)
Manuel Nieto (Spring 2001, Summer 2001)*
Edgar Padilla (2009)
Nidia Pedregon (Summer and Fall 2005, Spring 2006)
Miriam Pena (Fall 1999, Spring 2000)
Thientham Pham (Spring 2003-Spring 2004)
Ricardo Portillo (Spring, Summer and Fall 2001, Spring 2002)*
Essau Ramirez (2009)
Luis Rauda (Fall 1998, Spring 1999)*
Gary Rybak (Spring and Fall 1998)*
Alexander Sainz (Spring and Fall 2002)
Leonardo Salayandia (Spring and Fall 1998)*
Jason Shultes (2009-2010)
Mari Tapia (Fall 1998)
Victor Vela (Spring and Fall 1998)
Marcos Villareal (Spring, Summer and Fall 1999, Spring, Summer and Fall 2000)
Earl Yager (Spring 1998)

New Mexico State University

Liza Benally, McNair Scholar, 1994

Institut National des Telecommunications (students on internships)

Sebastien Deplaine, June 1995-Feb. 1996

Vincent Lambert, August 1992-March 1993

Recent Courses Taught

Spring 2011

CS5341 GR – Advanced Computer Architecture

COMP6394DR (6) Yipkei Kwok and Ricardo Portillo, CS6694DR (12) Yipkei Kwok and Ricardo Portillo, CS5399GR (3) – Michael Harney, CS4371 (3) – Fernando Cervantes,

Fall 2010

CS3320 – Computer Architecture II

COMP6394DR (6) Yipkei Kwok and Ricardo Portillo, CS6694DR (12) Yipkei Kwok and Ricardo Portillo, CS5398GR (3) – Michael Harney

Summer 2010

CS4371 (6) Esthela Gallardo and Joshua McCartney

Spring 2010

CS3320 – Computer Architecture II

COMP6394DR (6) Yipkei Kwok and Ricardo Portillo, CS6694DR (12) Yipkei Kwok and Ricardo Portillo

Fall 2009

CS5341 GR – Advanced Computer Architecture

COMP6394DR (3), COMP6399DR (3), CS5394DR (3), CS5341GR (3)CS4371 (3), CS6694DR (6)

Summer 2009

CS6399DR (3)

Spring 2009

CS3320 – Computer Architecture II

COMP 6399DR (3), CS5694DR (6), CS6394DR (3), CS5399GR (3), CS6399DR (3), CS6695DR (6)

Other Educational/Outreach Activities

2010 Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Joint Educational Opportunities for Minorities (JEOM) Research Workshop, June 29-July 1, 2010. Significant involvement as Keynote Speaker and Plenary Speaker on day 2.

Summer 2009 AHPCRC Education Program at UTEP (with David Novick and Sarala Arunagiri)

Focused on increasing the number of middle-school students capable of and interested in technical subjects, this program attempted to equip middle-school teachers of mathematics and their students with appropriate motivating examples of the usefulness of mathematical concepts and provide both the teachers and students with interactive computational technologies that can be used to refine associated mathematical knowledge and skills. In some cases different instances of an example are encapsulated in a computational tool, while in other cases the examples stand by themselves and can be, if desired, paired with computational tools.

April 2009 Collaborated with New Mexico State University (NMSU) to invite Dr. Robert M. (Bob) Panoff, founder and Executive Director of Shodor, to visit NMSU and UTEP to give presentations and have discussion with faculty and staff regarding “Outreach Strategies for STEM”. Shodor is a National Resource of Computational Science Education and a non-profit education and research corporation dedicated to reform and improve mathematics and science education by appropriate incorporation of computational and communication technologies. Bob visited UTEP for an entire day, 30 April 2009; this visit was sponsored by the Army High Performance Computing Research Center (AHPCRC) and the Department of Computer Science. He gave three talks, met with the Dean of Engineering, and had a round-table discussion at lunch with Drs. Sarala Arunagiri, David Novick, Stella Quinones, and Pat Teller.

2008 Expanding Your Horizons at UTEP

With Princess Trillo, an undergraduate student at UTEP, developed a 45-minute module that is an introduction to high performance computing (HPC) and programming. On 17 May 2008, Princess, myself, and four other women (graduate and undergraduate students in the CS Department) presented the module to four different groups of young women and had lunch with them afterwards. The module consists of a “Madagascar Penguin” video that illustrates how HPC is used to enhance our quality of life, a short interactive session that introduces the notion of a computer and programming, a short interactive session that introduces the Alice programming language, and a hands-on session in which students (helped by their mentors) write and experiment with an Alice program.

July 1, 2004-June 30, 2005/July 1, 2005-June 30, 2006 Elected Chair/Past Chair/Leadership Team Member, The Coalition to Diversify Computing (CDC)

While chair, partnered with the EPIC team to secure \$45,000 for CDC projects and with CRA-W on an NSF Broadening Participation grant proposal, which was awarded. (CDC is a project-based organization that has as its primary goal the enhancement and diversification of the available pool of highly-trained scientists and engineers in computer-related fields. It is a joint organization of the Association of Computing Machinery (ACM), Computer Research Association (CRA), and Institute of Electrical and Electronic Engineering Computer Society (IEEE-CS).)

2000-2004 Project Lead, Coalition to Diversify Computing, “Conference Support for Minority Students in CSE”

With a \$35,000 budget), this program offered support for minority students to attend technical conferences with their mentors.

October 2001 Scholarship Committee Member, Tapia Symposium 2001, Houston, TX.

2000-2002 In cooperation with the Kellogg Foundation-sponsored Learning Community

Partnership (in coordination with the Institute for Community-Based Teaching and EPIso, an El Paso-based community organization), which provides the framework for faculty and university students to mentor elementary-school students and serve in an advisory capacity, worked with A. Gates as mentors to Ascarate school. In this capacity, we supervised students to 1) provide a Spanish-language URL that provides UTEP and Department of Computer Science information to student and parents and 2) develop teaching materials and tutorials for faculty and student members of Ascarate's computer club to allow them to design and develop a URL for their school. During the Fall 2000 and Spring 2001 semesters we will facilitate the design and development of the URL at Ascarate. We plan to disseminate the materials for making a URL and provide teaching assistance to other El Paso schools with the help of the local student chapter of the ACM (Association for Computer Machinery). Attended and participated in a parents/teachers meeting with the goal of demonstrating to parents, via sharing of my own background, that college is within their children's grasp and that college professors are just regular people.

UTEP Engineering EXPO 2000 (with A. Gates), The University of Texas at El Paso, supervised students who developed and facilitated the "Wacky Website World," which allowed visitors to design and develop home pages using various tools and techniques.

UTEP Engineering EXPO '99 (with A. Gates), The University of Texas at El Paso, supervised students who developed and facilitated three modules that took visitors on an electronic tour of a day in various computer-science related careers, provided visitors with web-based information on career and educational opportunities in computer science, and permitted visitors to participate in a "treasure hunt" that introduced them to a variety of applications such as an editor, a spread sheet, and a browser, Spring 1999.

UTEP Engineering EXPO '98 (with A. Gates and R. Bell), The University of Texas at El Paso, supervised students who developed and facilitated three modules that taught visitors how to make home pages and develop computer animations via two software packages, and allowed them to participate in an electronic "scavenger hunt" on the internet, Spring 1998.

Department of Computer Science Summer Animation Workshop (with R. Bell), The University of Texas at El Paso, supervised students who developed and facilitated three two-week long computer animation workshops for middle- and high-school students, The University of Texas at El Paso, Summer 1998.

UTEP Engineering EXPO '97 (with A. Gates), University of Texas at El Paso, supervised students who developed and facilitated a module that taught visitors how to effectively "Surf the Net," make home pages, and generate and visualize fractals understand how to "Surf the Net," Spring 1997.

Expanding Your Horizons, New Mexico State University, introduced young women to computer science, March 1994. Designed, developed, and facilitated a day-long series of activities that introduced ten high-school honors students to computer science.

Recent Hosted Visits to UTEP

Dr. Jay Boisseau and TACC Staff, June 10, 2011.

Dr. Eric Sills, North Carolina State University, May 5, 2011.

Dr. Vallen Emery, ARL, Dr. Brian Schuster and Andre Bujanda, ARL/WMRD, and Jose Gonzalez and Edward Zarret (ARL/WSMR), March 9, 2011.

Dr. Vallen Emery, ARL, February 4, 2011.

September 30, 2009 AHPCRC CMC Meeting.

Feb. 26, 2009 Drs. Charbel Farhat, Stanford University, Raju Namburu, ARL, and Richard Pritchard, High Performance Technologies, Inc. (HPTi) – Drs. Sarala Arunagiri, Miguel Arguez, and Leticia Velazquez (UTEP) and Jeanine Cook (NMSU) participated.

August 20, 2009: Drs. John Kosinski, US Army, CERDEC, and Song Park, ARL – Drs. Sarala Arunagiri (UTEP) and Jeanine Cook (NMSU) participated.

April 18, 2008 Dr. Lizy John, UT-Austin – she presented a seminar.

Recent Visits to Other Institutions

June 2011 Texas Advanced Computing Center (Host: Jay Boisseau)

October 2009 Oak Ridge National Laboratory (Host: Ricky Kendall).

August 2, 2010 ARL-White Sands (Donald Hooch and Dave Knapp).

July 1 and 2, 2010 ARL, Aberdeen Proving Grounds and Adelphi (Dale Shires, Song Park, James Ross and Anders Sullivan and Lam Nguyen).

June 29-July 1, 2010 ARL, Aberdeen Proving Ground (Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Joint Educational Opportunities for Minorities (JEOM) Research Workshop).

April 16, 2009 ARL, Aberdeen Proving Ground.

March 30, 2009 ARL, Aberdeen Proving Ground, MD, Dale Shires and Song Park .

March 2009 Sandia National Laboratories.

June 12, 2008 ARL Program Formulation Workshop, Adelphi, MD.

SERVICE

PROFESSIONAL ACTIVITIES

Advisory Committee Member

Member of the Department of Defense Multidisciplinary Committee for Assessment of the Participation of Historically Black Colleges and Universities and Minority Institutions (HBCUs/MIs) in DoD's Research and Educational Activities, 2010-2011.

Member of UT System Cyberinfrastructure Committee, 2010-2013.

Texas Advanced Computing Center (TACC) Board of Visitors, 2009-2011.

Nominating Committee Chair, SC Steering Committee, 2010.

SC Steering Committee Chair, 2009.

NSF iPlant Nominating Committee, 2008-2010.

NSF iPlant EOT Advisory Board, 2008-2010.

NSF TeraGrid Science Advisory Board, 2008-2010.

Army High Performance Computing Research Center (AHPCRC) Consortium Management Council, 2007-2011.

Leadership Team, Coalition to Diversify Computing, July 2005-June 2006.

Steering Committee of SCxy Conference (International Conference for High Performance Computing, Networking, Storage, and Analysis) Series, 2004-2010.

Terascale Advisory Council of the Pittsburgh Supercomputing Center, 2001-2003

Conference/Workshop Chair

Executive Director, 23rd International Conference for High Performance Computing, Networking, Storage, and Analysis, New Orleans, LA, November 2010.

General Chair, 21st International Conference for High Performance Computing, Networking, Storage, and Analysis (SC08 or Supercomputing 2008), Austin, TX, November 2008. (record-breaking conference with a \$6.5M budget, almost 10,000 attendees, and approximately 500 volunteer committee members)

Deputy Chair, SC07, Reno, NV, November 2007.

Co-Finance Chair, SC 2006, Tampa, FL, November 2006. (\$4.5M budget and over 7,000 attendees)

Co-Chair, Technical Papers, Richard Tapia Celebration of Diversity in Computing Conference 2005, Albuquerque, NM, October 19-22, 2005,
Tutorials Chair, 2004 International Parallel and Distributed Processing Symposium (IPDPS 2004), Santa Fe, NM, April 2004.
Finance Chair, SC 2003, Phoenix, AZ, November 2003. (\$2M and over 7,000 attendees)
Tutorials and Workshops Chair, 30th Annual International Symposium on Computer Architecture (ISCA 2003), San Diego, CA, June 2003.
Tutorials Chair, 2003 International Parallel and Distributed Processing Symposium (IPDPS 2003), Nice, France, April 2003.
Co-organizer of SC 2003 Birds-of-a-Feather Meeting: “Women in High-performance Computing,” (with Shirley Moore, University of Tennessee-Knoxville) SC 2003, Baltimore, MD, November 2002.
Publicity Coordinator, 2002 International Parallel and Distributed Processing Symposium (IPDPS 2002), Fort Lauderdale, FLA, April 2002.
Co-organizer of Workshop on Performance Engineering Technology Research Sponsored under the NSF Next Generation Software (NGS) Program, Austin, TX, (with Frederica Darema, NSF, and J. Browne, UT-Austin), February 28 – March 1, 2002.
IEEE Liaison, 2002 IEEE International Performance, Computing, and Communication Conference, Phoenix, AZ, February 2002.
Panels Coordinator, Supercomputing 2001, Denver, CO, November 2001.
Invited Speakers Chair and Back-up for Technical Program Chair, Supercomputing 2000, Dallas, TX, November 2000.
Tutorials Chair, 26th Annual International Symposium on Computer Architecture, Atlanta, GA, May 1999.
Student Volunteers Chair, Supercomputing '99, Portland, OR, November 1999. (Recruited, oriented, and managed approximately 85 students; managed \$35,000 budget (as well as student registrations and airfare grants).
Posters Chair, Supercomputing '97, November 1997.
Tutorials Chair, 23rd Annual International Symposium on Computer Architecture, May 1996.

Conference Technical Program Committee Member
Technical Program Committee, 3rd ACM/SPEC International Conference on Performance Engineering (ICPE 2011), Boston, MA, April 2012.
Technical Program Committee, 25th International Conference on Supercomputing (ICS 2011), June 1-4, 2011, Tucson, AZ (sponsored by ACM/SIGARCH).
Technical Papers Program Committee, 11th LCI International Conference on High Performance Clustered Computing, March 9-11, 2010, Pittsburgh, PA.
Technical Papers Program Committee, 10th LCI International Conference on High Performance Clustered Computing, March 6-10, 2009, Montpellier, France.
Technical Papers Program Committee, 15th IEEE International Symposium on High-Performance Computer Architecture (HPCA'09).
Technical Papers Program Committee Member, the 2006 International Conference on Parallel Processing (ICPP 2006), Operating Systems and Resource Management Program, Columbus, Ohio, August 4-6, 2006.
Technical Papers Program Committee Member, 2006 International Parallel and Distributed Processing Symposium (IPDPS 2006).
Technical Papers Program Committee Member, the 19th ACM International Conference on Supercomputing (ICS) 2005.
IEEE Computer Society's 2004 Seymour Cray Award Committee Member, Supercomputing 2004 (SC04), November 2004.

Technical Papers Program Committee Member, Supercomputing 2002 (SC02), November 2002.
Technical Program Committee Member, 2001 IEEE International Performance, Computing, and Communication Conference, Phoenix, AZ, February 2001.
Technical Program Committee Member, 1999 IEEE International Performance, Computing, and Communication Conference, Scottsdale, AZ, February 16-18, 1999.
Technical Program Committee Member, 1998 IEEE International Performance, Computing, and Communication Conference, Tempe/Phoenix, AZ, February 1998.
Technical Program Committee Member, 4th International Conference on High Performance Computing, December 1997.
Technical Papers Program Committee Member and Tutorial Program Committee Member, Supercomputing '97, November 1997.
Technical Papers Program Committee Member and Tutorial Program Committee Member, Supercomputing '96, November 1996.
Technical Program Committee Member, 14th International Conference on Distributed Computing Systems, June 1994.
Technical Program Committee Member, 1993 Computational Science Workshop, sponsored by Los Alamos National Laboratory.
Technical Program Committee Member, 20th Annual International Symposium on Computer Architecture, May 1993.
Technical Program Committee Member, Frontiers of Massively Parallel Computation, October 1992.
Technical Program Committee Member, 19th Annual International Symposium on Computer Architecture, May 1992.

Selected Track Session Chair

Session Chair, Richard Tapia Celebration of Diversity in Computing Conference 2005, Albuquerque, NM.
Session Chair, 10th International Conference on Parallel and Distributed Systems (ICPADS) 2004, Newport Beach, CA, July 2004.
Session Chair, The Sun Conference on Teaching and Learning, Center of Effective Teaching and Learning (CETaL), UTEP, El Paso, TX, March 2004, March 7-8, 2003, and March 8-9, 2002.
Plenary Chair, SC 2001, Denver, CO.
Session Chair, Supercomputing 2000, Dallas, TX, November 4-10, 2000.
Session Chair, 2000 Frontiers in Education Conference (FIE 2000), Kansas City, MO, October 18-21, 2000.
Session Chair, Supercomputing '99, Orlando, FLA, November 1999.
Track and Session Chair, 1999 IEEE International Performance, Computing, and Communication Conference, Scottsdale, AZ, February 1999.
Track and Session Chair, 1998 IEEE International Performance, Computing, and Communication Conference, Tempe/Phoenix, AZ, February 16-18, 1998.
Session Chair, 1997 Frontiers in Education Conference, Pittsburgh, PA, November 1997.
Session Chair, Supercomputing '96, November 1996.
Session Chair, International Phoenix Conference on Computers and Communication, Phoenix, AZ, April 1994.
Session Chair, 19th Annual International Symposium on Computer Architecture, May 1992.

Selected Proposal/Program Reviewer

OASCR, Office of Advanced Scientific Computing Research, Department of Energy, 2009.
SciDAC2 Review Panel Member, Centers for Enabling Technologies (CET), Department of Energy, Office of Advanced Scientific Computing Research, April 17, 2006.
CISE Remote Reviewer for Jose Munoz, National Science Foundation, June 2005.

CISE Next Generation Software (NGS) Review Panel Member, National Science Foundation, February 2004.
CISE PACI Program Reviewer, National Science Foundation, October 2002.
ITR Medium Review Panel Member, National Science Foundation, February 12-13, 2002.
CISE PACI Program Reviewer, National Science Foundation, October 22-23, 2001.
CSEMS Panel Reviewer, National Science Foundation, May 30-June 2, 2001.
CISE CAREER Program Reviewer, National Science Foundation, 2000.
CISE PACI Program Reviewer, National Science Foundation, July 1999.
Panelist for National Science Foundation, CCR Panel, Instrumentation Grants for Research in Computer and Information Science and Engineering (CISE/CDA), October 1998.
Reviewer for Department of Energy Defense Programs Accelerated Strategic Computing Initiative (ASCI) - ASCI Alliance Level II Reviewer, Proposal Review Team met June 14-16, 1997.
Reviewer for Department of Energy Defense Programs Accelerated Strategic Computing Initiative (ASCI) - ASCI Alliance Level I Reviewer, Preproposal Review Team met January 1997.
Reviewer for Master's Program of the Division of Computer Science at The University of Texas at San Antonio, March 25-26, 1997.
Panelist for the National Science Foundation, CISE/OCDA Educational Innovation Program, April 16, 1996.

Invited Workshop/ConferenceParticipant

Advanced Computing Systems Workshop, Annapolis, MD, 9/16-17, 2009. This was a workshop on high-performance computing systems hosted by the NSA and the DoE Institute of Excellence.
The Conference on High Speed Computing – HPC in the Era of Ubiquitous Parallelism: Multicore and Hybrid Architectures (The Salishan Conference), sponsored by Lawrence Livermore, Los Alamos, and Sandia National Laboratories, April 2008, Gleneden Beach, Oregon. This invited-only Conference brings together experts in computer architectures, languages, and algorithms to improve communications, develop collaborations, solve problems of mutual interest and provide effective leadership in the field of high speed computing. Leading experts from the National Labs, Industry, and Academia address and discuss major issues relevant to High Performance computing.
The Conference on High Speed Computing – I/O and Data at the Grand Scale (The Salishan Conference), April 2006, Gleneden Beach, Oregon.
The Conference on High Speed Computing – Paths to Petaflops (The Salishan Conference), April 2005, Gleneden Beach, Oregon.
The Conference on High Speed Computing – Applications, Algorithms, and Architectures (The Salishan Conference), April 2004, Gleneden Beach, Oregon.
The Conference on High Speed Computing – Extreme Scale Computing (The Salishan Conference), April 2003, Gleneden Beach, Oregon. Two Ph.D. candidates, Ricardo Portillo and Diana Villa, were invited to attend the conference all expenses paid. Diana presented a poster of her IBM-related research.
DARPA High Productivity Computing Workshop, Arlington, VA, July 15, 2002.
The Conference on High Speed Computing (The Salishan Conference), April 2002, Gleneden Beach, Oregon. A Ph.D. candidate, Diana Villa, was invited to attend the conference all expenses paid.
The Conference on High Speed Computing (The Salishan Conference), sponsored by Lawrence Livermore, Los Alamos, and Sandia National Laboratories, April 23-26, 2001, Gleneden Beach, Oregon.
Performance Workshops, sponsored by Los Alamos National Laboratory, November 1995, 1996, 1997.

Paper Referee/Reviewer

Refereed for many publishers, publications, and conferences including:

IEEE Computer, IEEE Computer Society Press,
IEEE Concurrency,
IEEE Transactions on Computers,
IEEE Transactions on Parallel and Distributed Systems,
The Journal of Parallel Computing,
The Journal of Computing in Science and Engineering,
The Journal of Parallel and Distributed Computing,
The Journal of Supercomputing,
MICRO,
ACM International Conference on Supercomputing (ICS),
Frontiers of Massively Parallel Computation,
IEEE International Performance, Computing, and Communication Conference,
IEEE International Symposium on High-Performance Computer Architecture (HPCA),
IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and
Telecommunication Systems (MASCOTS),
Frontiers in Education Conference,
International Conference on Distributed Computing Systems,
LCI International Conference on High Performance Clustered Computing,
International Conference on High Performance Computing,
International Conference on High Performance Computing, Networking, Storage and Analysis
(Supercomputing/SC),
International Conference on Parallel Processing (ICPP),
International Parallel and Distributed Processing Symposium (IPDPS),
International Symposium on Computer Architecture (ISCA),
Linux Symposium,
Richard Tapia Conference,
Supercomputing Conference,
Prentice Hall, and
Kluwer Academic Publishers.

Professional Organizations

Association for Computing Machinery (ACM), member since 1979.
The Institute of Electrical and Electronic Engineers, Inc. (IEEE) and IEEE-CS, member since 1985.
Golden Key Honor Society, honorary member.
Phi Beta Kappa, member since 1979.

FACULTY SERVICE

University Committees

The University of Texas at El Paso

University Representative, University of Texas System Cyberinfrastructure Steering Committee and
Faculty Outreach Subcommittee, 2010-2012.

University Representative, High Performance Computing Across Texas (HiPCAT), 2004-present.
Monthly telecons and bi-annual in-person meetings.

UTEP Representative, Army High Performance Computing Research Center, CMC (Consortium
Management Committee), 2007-present. Quarterly in-person meetings and periodic telecons, in
addition to administrative tasks and interfacing with AHPCRC researchers on campus.

Member, Centennial Committee, Research Task Force, 2004.

Member, Computational Science Task Force, 2004.

Member, Faculty Senate, 2004-2006.

Member, Bioinformatics Research Committee, 2004.

Member, CARPE, since 2003.

Member, Dean's Search Committee, 2003

Member, Instructional Technology Task Force, 2001.

Member, Futurists Committee, Spring 2001-present.

Member, Maui Supercomputing Center Proposal Committee, Fall 2000.

Member, Academic Affairs Information Technology (AAIT) Committee (alternate for L. Longpre), Fall 2000.

Member, Internet2 Committee, participated in and helped organize pre-proposal activities, in particular helped organize and run a related workshop, 1999-2000.

Member, Colleges of Science and Engineering Seminar Committee, 1999.

Member, MIE Undergraduate Curriculum Task Force, identify changes to engineering and science curriculum that are needed to realize the MIE vision, and define a method to implement the changes, Spring 1997-1998.

2004-2010: Under my leadership, UTEP has participated in a research exhibit booth at The International Conference for High Performance Computing, Networking, Storage and Analysis. The booth has been shared with New Mexico Computing Applications Center (NMCAC) (2009-2010), New Mexico Institute of Mining and Technology (since 2004), University of New Mexico (since 2004), New Mexico State University (2004-2009), Arizona State University (in 2007), University of Oklahoma (since 2007), and Navajo Technical College (in 2010). UTEP research is feature in posters from Computer Science, Computational Sciences, Geological Sciences, Physical Sciences, Bioinformatics, Engineering, and CyberShARE as well as briefing materials.

College Committees

The University of Texas at El Paso

Inaugural Chair, College Faculty Council, Fall 2008-Spring 2009. Scheduled and facilitated meetings, edited minutes, reported to the Dean, informed faculty of the Council's activities, etc. In Spring 2009, the council facilitated the approval of three important College policy documents on Annual Evaluations and Merit Increases, Three-Year Evaluations, and Tenure and Promotion. Organized and facilitated the May 1 College Faculty meeting.

Informal Member, Faculty Search Committee, Department of Electrical and Computer Engineering, 2009.

Chair, Task Force on Strengthening the Graduate Programs, 2005.

Member, Integrated Curriculum, 2004/2005.

Member, Sustainable Engineering Committee, 2001-2002.

Member, Dean's Advisory Board for Quality Management, 2001-2002.

Member, College of Engineering Scholarship Committee, Spring 2000-Present.

Member, Hewlett Packard/Agilent Technologies Scholarship Committee, 1999 and 2000.

Member, College of Engineering Curriculum Committee, consider and approve changes to curriculum, Fall 1998.

Member, College of Engineering Outreach Committee, 1997.

Department Committees

The University of Texas at El Paso

Member, Faculty Search and Screen Committee, 2010-2011.

Chair, Faculty Search and Screen Committee, 2009-2010.

Member, Chair Search and Screen Committee, 2008-2009.

Chair, Promotion and Tenure Committee, 2010.

Member, Promotion and Tenure Committee, 2001-present.

Member, Post-Tenure Committee, 2009-present.

Member, Faculty Annual Evaluation Committee, 2009.

Curriculum Vitae – Patricia J. Teller

Member, Three-Year Review Committee, 2009.
Member, Facilities Committee, 2005/2006 and 2009-present.
Member, Undergraduate Curriculum Committee, 2007-present.
Chair, CQI, Systems Courses, 2007-present.
Member, PhD Qualification Exam Committee.
Member, Graduate Committee, 2004-2006.
Chair, Graduate Committee, 2004-2005.
Chair, Undergraduate Curriculum Committee, 2004-2006.
Member, CQI, 2004-2005.