

Dimitrios Katramatos

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Education

University of Virginia, Charlottesville, VA

Ph.D. in Computer Science

Thesis: Dynamic Resource Sharing Mechanisms for High-Performance Heterogeneous Clusters

January 2005

GPA: 3.74

Kent State University, Kent, OH

M.S. in Computer Science

Thesis: Heterogeneous Process Migration on a Massively Parallel Processor

December 1996

GPA: 4.00

National Technical University of Athens, Athens, Greece

Diploma in Mechanical Engineering

Thesis: Calculation of 2D Fully Separated Shear Layers in Internal Aerodynamics Cases, with Emphasis on Energy Loss Prediction

February 1988

Research and Programming Experience

Brookhaven National Laboratory, Upton, NY. *September 2005 – present*

RHIC/ATLAS computing facility, Physics Department. Researcher and technical leader for the DOE-funded TeraPaths project. The TeraPaths project investigates the use and integration of DiffServ and MPLS/GMPLS network technologies in establishing end-to-end virtual network paths with guaranteed bandwidth across multiple administrative domains. Main goal is the prioritization, protection, and throttling of network data flows and the scheduling of network usage through advance reservations in modern high-performance data-intensive distributed computing environments.

University of Virginia, Dept. of Computer Science, Charlottesville, VA. *January 1997 – December 2004*

Research assistant. Developed, as part of Ph.D. research, a mapping evaluation and selection service for scheduling parallel applications on heterogeneous clusters. The service utilizes application profiling and system/network performance modeling, based on extensive benchmarking, to select mappings that maximize application performance. Funded by Sandia National Laboratories, Albuquerque, NM. Contributed to the Legion project at UVa by designing, implementing, and testing key parts of the Resource Management Infrastructure of the Legion grid system.

Sandia National Laboratories, Albuquerque, NM. *May – August 2000*

Visiting researcher, Computer Science Research Institute. Examined performance and communication latency differences between cluster nodes and their effect on application mapping efficiency. Developed for this purpose an automated cluster profiling system based on microbenchmarks.

Kent State University, Dept. of Computer Science, Kent, OH. *January – December 1996*

Research assistant. Examined feasibility, and designed and implemented software and necessary kernel modifications to perform process migration between the Sandia/UNM developed Puma and the Linux operating systems running on a massively parallel processor. Funded by Sandia National Laboratories, Albuquerque, NM.

Softa S/A, Athens, Greece. *May – September 1989*

Research associate. Developed software modules for the analysis of large-scale natural gas networks. Designed and built the interface between the network information database, the gas flow analysis software, and the flow simulation software.

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National Technical University of Athens, Athens, Greece. *February 1988 – May 1989*

Research assistant, Laboratory of Thermal Turbomachines. Developed algorithms and software for analyzing viscous flow phenomena on the blades of axial compressors.

Other Experience

Domus Key Factory S/A, Athens, Greece. *April 1992 – May 1993*

Planning manager. Planned and controlled manufacturing resources with the aid of the company's custom software package, and supervised the operation and staff of the raw materials warehouse.

Technical Corps, Greek Army, Greece. *September 1989 – March 1991*

651 Base Ordnance Depot - Materiel Control Center. Checked, corrected, and improved the bills of materials for a variety of military equipment for the fifth echelon repairs.

301 Base Workshop - Computer Department. Developed a database application in Oracle environment for automating the maintenance of the bills of materials and the procurement of materials for the fifth echelon repairs of transport and armored vehicles, guns, howitzers, and small arms.

Selected Publications

Dimitrios Katramatos, Bruce Gibbard, Dantong Yu, Shawn McKee. **The TeraPaths Testbed: Exploring End-to-End Network QoS.** Proceedings of the 3rd International Conference on Testbeds and Research Infrastructure for the Development of Networks and Communities and Workshops (TridentCom 2007), Orlando, Florida, USA, May 21-23, 2007.

Dimitrios Katramatos, Bruce Gibbard, Dantong Yu, Shawn McKee. **TeraPaths: End-to-End Network Path QoS Configuration Using Cross-Domain Reservation Negotiation.** Proceedings of the 3rd International Conference on Broadband Communications, Networks, and Systems (BROADNETS 2006), San Jose, California, USA, October 1-5, 2006.

Dimitrios Katramatos, Steve J. Chapin. **A Scalable Method for Predicting Network Performance in Heterogeneous Clusters.** Proceedings of the 2005 IEEE International Symposium on Parallel Architectures, Algorithms, and Networks (ISPAN 2005), pp. 288-295, Las Vegas, Nevada, USA, December 7-9, 2005.

Dimitrios Katramatos, Steve J. Chapin. **A Cost/Benefit Estimating Service for Mapping Parallel Applications on Heterogeneous Clusters.** Proceedings of the 2005 IEEE International Conference on Cluster Computing (Cluster 2005), Boston, Massachusetts, USA, September 26-30, 2005.

Dimitrios Katramatos, Marty Humphrey, Andrew Grimshaw, and Steve Chapin. **JobQueue: A Computational Grid-Wide Queuing System.** Proceedings of the 2nd International Workshop on Grid Computing (GRID2001), pp. 99-110, Denver, Colorado, USA, November 12, 2001.

Dimitrios Katramatos, Marty Humphrey, Cheol-Min Hwang, and Steve Chapin. **Developing a Cost/Benefit Estimating Service for Dynamic Resource Sharing in Heterogeneous Clusters: Experience with SNL Clusters.** Proceedings of the 1st IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid 2001), pp. 355-362, Brisbane, Australia, May 15-18, 2001.

Steve J. Chapin, Dimitrios Katramatos, John Karpovich, Andrew Grimshaw. **Resource Management in Legion.** Future Generation Computer Systems 15, pp.583-594, 1999.

Professional Affiliations

Technical Chamber of Greece (licensed professional mechanical engineer)
Hellenic Association of Mechanical and Electrical Engineers
Association for Computing Machinery
Institute of Electrical and Electronics Engineers