CURRICULUM VITAE

Dragan Mirkovic, PhD

Visiting Assistant Professor,
Department of Computer Science,
University of Houston, Houston, TX 77204

Born: September 30, 1960, Pula, Croatia
Status: US Citizen
Address: Department of Computer Science, University of Houston, Houston, TX
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Education

1990-1993 Ph. D. in Applied Mathematics State University of New York at Stony Brook
1986-1990 M. S. in Nuclear Engineering at the University of Zagreb, Croatia
1979-1983 B. S. in Nuclear Engineering at the University of Zagreb, Croatia

Professional Experience

2003-present Visiting Assistant Professor,
Department of Computer Science,
University of Houston, Houston, TX

1998-2003 Research faculty,
Department of Computer Science,
University of Houston, Houston, TX
Research projects:

1. Parallel adaptive FFT software library for National Center for Supercomputing Applications (NCSA).
2. 3-Dimensional Image Reconstruction in Electron Cryomicroscopy. Collaboration with Wah Chiu, National Center for Macromolecular Imaging, Baylor College of Medicine.
3. Fast spherical and Fourier transform software for the Air Force Office of Scientific Research (AFOSR).
4. Software development for ultra-scale parallel computing environments for the Los Alamos National Laboratory.
5. Grid Application Development System for the National Science Foundation (NSF).
6. Modeling and simulation of hemodynamics problems. Collaboration with Prof. S. Canic, Mathematics, University of Houston.

1994-1999	Assistant Professor, Department of Mathematics, Iowa State University, Ames, IA Research projects: 1. Nonlinear Filtering Approaches to Multitarget Tracking for Office of Naval Research (ONR). 1. Parallel, three-dimensional, porous media flow simulator with a front-tracking capability. 2. Parallel multidimensional finite element package.
1993-1994	Postdoctoral Research Associate, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook. Research and development of parallel numerical methods for oil reservoir simulations.
1990-1993	Research/Teaching Assistant, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook. PhD thesis: Domain Decomposition Approach to Mixed Finite Element Solution of Elliptic Problems.
1989-1990	Visiting Scientist, Department of Nuclear Energy, Brookhaven National Laboratory, Upton, NY. Participated in several projects for the US Nuclear Regulatory Commission.
1984-1990	Research Associate, Department of Nuclear Energy, School of Electrical Engineering, University of Zagreb, Croatia. Participated in several international research projects initiated by the International Atomic Energy Agency.

Memberships in Professional Societies: ACM, SIAM, AMS

Teaching Experience

Year	Semester	Courses
2003-2004	**Fall**	COSC3480 (Design of File and Database Systems) **COSC3361 (Numerical Methods I)**
2003-2004	**Fall**	COSC2410 (Computer Organization and Programming)
	Spring	COSC2410 (Computer Organization and Programming) COSC3480 (Design of File and Database Systems)
1998-2002		COSC7364 (Advanced Parallel Sci. Comp.), UH (Several Substitutions for Prof. Johnsson)
1997-1998	Fall	M165 (Calculus I), ISU. M166 (Calculus I), ISU.
	Spring	M471 (Comp. Linear Algebra and Fixed Point Iteration), ISU.
1996-97	Fall	M265 (Calculus III), Iowa State University (ISU). M522 (Perturbation Methods in Applied Mathematics), ISU.

1995-96	Fall	M166 (Calculus II), ISU. M507 (Numerical Sol. of Ordinary Differential Equations), ISU.
	Spring	M508 (Numerical Sol. of Partial Differential Equations), ISU.
1994-95	Fall	M165 (Calculus I), ISU. M266 (Elementary Differential Equations), ISU.
	Spring	M522 (Perturbation Methods in Applied Mathematics), ISU.
1992-93	Fall	AMS691 (Computer Literacy Course), SUNY at Stony Brook.
1991-92	Spring	AMS691 (Computer Literacy Course), SUNY at Stony Brook.
1985-90	Fall	ETF 2011 (Introduction to Energy Processes), School of Electrical Engineering, University of Zagreb, Croatia.
	Spring	ETF 3116 (Energy Processes), School of Electrical Engineering, University of Zagreb, Croatia.

Research Interests

Scientific and Parallel Computing,
Fast Algorithms and Fourier Transforms,
Image Reconstruction in Biomedical Applications,
Automatic Performance Tuning,
Hemodynamics modeling and simulations,
Numerical Solution of Partial Differential Equations,
Flow in Porous Media.

Grants and Awards

2004-2006	Intel - Developing a UHFFT package supporting the DFTI by Peter Tang, cluding optimization for Intel 32-bit and 64-bit platforms. wth Lennart Johnsson) Award amount: $60,000
1997-2002	Scalable Scientific Software Libraries, NSF/University of Illinois subcontract, Lennart Johnsson (PI), Award amount: $245,423. Los Alamos Computer Science Institute, DOE/Rice University subcontract, Lennart Johnsson (PI), Award amount: $1,501,991.
1999-2003	Grid Application Development Software, NSF/Rice University subcontract, Award amount: $302,329.
1996-1998	ONR Nonlinear Filtering Approaches to Multitarget Tracking, Statistics and Probability, Division of Mathematical Sciences (with J. Breidt, A. Budhiraja, A. Carriquiry and W. Kliemann) Total award amount: $604,342.
1996	Iowa State University start-up grant Award amount: $10,500.

1989-1990 International Atomic Energy Agency, Vienna, IAEA Fellowship, Brookhaven National Laboratory, Upton, NY.

Publications

1.Canic, S., Tambaca, J., Mikelic, A., Hartley, C. J., Mirkovic, D., Chavez, J., Rosenstrauch, D., (2004) Blood flow through axially symmetric sections of compliant vessels: new effective closed models, Proceedings of the 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, September 1-5, 2004, San Francisco, California.

2.Mirkovic, D., Johnsson S.L. (2004) Automatic Performance Tuning for Fast Fourier Transforms, International Journal of High Performance Computing Applications, Vol. 18, No. 1, 2004, pp. 47-64.

3.Mirkovic, D., Johnsson S.L. (2003) CODELAB: A Developers' Tool for Efficient Code Generation and Optimization, Computational Science - ICCS 2003, Lecture Notes in Computer Science 2657, Vol. 4, pp. 729-738.

4.Mirkovic, D., Johnsson S.L. (2001) Automatic Performance Tuning in UHFFT Library. In proceedings of the 2001 International Conference on Computational Science, ICCS 2001, May 2001, San Francisco, Lecture Notes in Computer Science 2073, Vol. 1, pp. 71-80.

5.Mirkovic, D., Mahasoom R., Johnsson S.L. (2000) An Adaptive Software Library for Fast Fourier Transforms. Proceedings of the 2000 International Conference on Supercomputing, Santa Fe, NM , pp. 215-224.

6.Canic , S. and Mirkovic D. (2001) A hyperbolic system of conservation laws arising in modeling endovascular treatment of abdominal aortic aneurysm, Hyperbolic Problems: Theory, Numerics, Applications, Vol. 141(1), pp. 227-236.

7.Canic, S. and Mirkovic, D. (1998) A Numerical Study of Riemann Problems for the Two-Dimensional Unsteady Transonic Small Disturbance Equation. SIAM Journal on Applied Mathematics 58(5):1365-1393.

8.Mirkovic, D. (1996) N-Dimensional Finite Element Package. Proceedings of the High Performance Computing Conference, April 1996, New Orleans, LA, pp. 324-329.

9.Mirkovic, D. (1995) Simulation of Porous Media Flow on Parallel Machines. Proceedings of the 17th International Conference on Information Technology Interfaces, Pula, Croatia, pp. 455-462.

10.Mirkovic D., Diamond, D.J. (1991) Effect of Flushing of Boron During a Boiling Water Reactor Anticipated Transient without Scram. Nuclear Technology 95:162-174.

11.Diamond, D.J., Mirkovic D., Hsu C.-J., and Fitzpatrick, R. (1991) The Potential for Catastrophic Fuel Damage During Beyond-Design-Basis Overpressurization Accidents in a Boiling Water Reactor. Nuclear Technology 93:158-165.

12.Mirkovic D., Diamond, D.J. (1990) Boron Flushing During BWR ATWS, Trans. of American Nuclear Society 61, pp. 222-223

13.Diamond, D.J., Hsu C.-J., and Fitzpatrick, R., and Mirkovic D. (1990) Reactivity Accidents with the Potential for Catastrophic Fuel Damage. Nuclear Safety 31(3):

14.Mirkovic, D., Diamond, D.J. (1990) Boron Flushing During BWR Anticipated Transient Without Scram, Technical report, U.S. Nuclear Regulatory Commission, NUREG/CR-5573.

Theses

Domain Decomposition Approach to Mixed Finite Element Solution of Elliptic Problems, Ph.D. Thesis, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, 1993.
Thesis Advisor: Prof. W. Brent Lindquist

Thermal-hydraulics Parameter Analysis During the Natural Circulation, M.Sc. Thesis, Department of Energy, School of Electrical Engineering,University of Zagreb, Croatia, January 1990.
Thesis Advisor: Prof. Danilo Feretic.

Participation in Conferences

LACSI Symposium 2002, Los Alamos Computer Science Institute Symposium,
Santa Fe, New Mexico, October 13-16, 2002
Title: "CODELAB: Developers' Tool for Efficient Code Generation and Optimization"

IFIP WG 2.5 2002, Workshop on Mathematics of Mathematical Software,
Portland, Oregon, June 3-4, 2002.
Title: "Automatic Code Generation for FFT Algorithms"

ICCS 2001, Conference on Computational Science,
May 2001, San Francisco, USA
Title: "Automatic Performance Tuning in UHFFT Library"

ICS 2000, International Conference on Supercomputing,
Santa Fe, New Mexico, May 8-11, 2000,
Title: "An Adaptive Software Library for Fast Fourier Transforms"

10th International Conference on Domain Decomposition Methods,
August 10-14, 1997, Boulder, Co
Title: "A Domain Decomposition Algorithm for Random Vibrations Problems"

1997 SIAM Annual Meeting, July 14-18, 1997, Stanford University, Ca
Title: "Numerical Solution of the Multidimensional Fokker-Planck Equation With Application to Laser Cooling Problems"

9th International Conference on Domain Decomposition Methods,
June 4-7, 1996, Bergen, Norway
Title: "A Domain decomposition Method for the Fokker-Planck Equation"

High Performance Computing 1996, April 8-11, 1996, New Orleans, LA
Title: "N-Dimensional Finite Element Package"

1995 SIAM Annual Meeting, October 23-26, 1995, Charlotte, NC

Title: "Preconditioning for Parallel Domain Decomposition in Mixed Finite Element Setting"

ITI 95, June 13-16, 1995, Pula, Croatia
Title: "Simulation of Porous Media Flow on Parallel Machines"

1994 SIAM Annual Meeting, July 25-29, 1994, San Diego, CA
Title: "Parallel, Mixed Finite Element Approximation for the Porous Media Flow Problem"

Fifth International Conference on Hyperbolic Problems: Theory, Numerical Methods, and Applications Stony Brook, June 13-17, 1994.
Title: "An Efficient Parallel Method for the Porous Media Flow Problem"

International Workshop on Numerics for Perturbed Dynamical Systems Iowa State University, March 6-10, 1994.
Title: "An Efficient Parallel Method for Numerical Simulation of Porous Media Flow"

7th International Conference on Domain Decomposition Methods,
The Pennsylvania State University, State College, PA 10/1993
Title: "Domain Decomposition for the Front Tracking Reservoir Simulator"

III Workshop on Partial Differential Equations,
IMPA, Rio de Janeiro, Brazil, 7/93,
Title: "A Domain Decomposition Approach to Mixed Finite Element Solution of Elliptic Problems"

Annual Meeting of American Nuclear Society, Nashville, TN 6/90
Title: "Boron Flushing after BWR ATWS"

Invited Lectures

6/2002, IFIP WG 2.5 2002, Workshop on Mathematics of Mathematical Software,
Portland, Oregon. Title: "Automatic Code Generation for FFT Algorithms"

5/2001, ICCS 2001, Conference on Computational Science,
San Francisco, Title: "Automatic Performance Tuning in UHFFT Library"

3/97, Renaissance Technologies, Stony Brook, NY,
"Nonlinear Filtering for Multi-Models"

4/96, Second International ISU Workshop on Numerics for Dynamical Systems,
"Finite Element Methods for Partial Differential Equations"

3/96, Regional AMS Meeting, Iowa City, Iowa, "Numerical Method for a
Free Boundary Value Problem Arising in Weak Shock Reflection"

2/96, University of Houston, Houston, TX
"Finite Element Approximation for the n-Dimensional Fokker-Planck Equation"

1/96, State University of New York at Stony Brook,
"Multidimensional Finite Element Package"

3/95, State University of New York at Stony Brook,
"Parallel Elliptic Solvers for Reservoir Modeling"

3/94, Iowa State University, Ames, IA,
"An Efficient Parallel Method for Numerical Simulation of Porous Media Flow"

7/93, IMPA (Instituto de Matematica Pura e Aplicada), Rio de Janeiro, Brazil,
"A Domain Decomposition Approach to Mixed Finite Element Solution of
Elliptic Problems"

2/93, Iowa State University, Ames, IA,
"A Domain Decomposition Approach to Mixed Finite Element Solution of
Elliptic Problems"

Referee for: Springer-Verlag, CIT, SIAM J. Appl. Math., SIAM J. Sci. Comp., Stochastics.

Graduate Students

Maamar Benkrouda, M.S., Department of Mathematics, ISU, Fall 1997.
George Peters, Ph.D., Department of Mathematics, ISU, Fall 1997.

References:

Prof. Lennart Johnsson, Department of Computer Science, University of Houston, 4800 Calhoun Road, Houston, TX, 77204-3475.
Prof. Brent Lindquist, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, Stony Brook, NY, 11793-3600.
Prof. Wolfgang Kliemann, Department of Mathematics, Iowa State University, 400 Carver Hall, Ames, IA, 50011.
Prof. Roland Glowinski, Department of Mathematics, University of Houston, 4800 Calhoun Road, Houston, TX, 77204-3475.