Information Science and Technology Center
Report for Sept 2000 – Sept 2005 Period

September 2005 marked five years from inauguration of Information Science and Technology (IST) Center at Temple University. The main mission of the IST Center is advanced research and education aimed toward solving challenging problems in data mining, machine learning, multimedia databases, data compression, biomedical informatics, pattern recognition, computer vision, robot mapping, computational genomics, and artificial intelligence. The results of investigations at the IST Center in 2000-2005 period were published as about 60 journal papers, 123 refereed conference papers, and 9 refereed book chapters. The awarded research funding for projects that involve investigators from IST Center was near 6 million dollars. Specific activities at the IST Center of the first five year period are summarized in this report.

Table of Contents:

I. List of Faculty

Zoran Obradovic, Ph.D. 1991, Penn State, Professor and Director

Rolf Lakaemper, Ph.D. 2000, University of Hamburg, Assistant Professor

Longin Jan Latecki, Ph.D. 1992, University of Hamburg, Associate Professor

Vasileios Megalooikonomou, Ph.D. 1997, University of Maryland, Baltimore County, Associate Professor

Slobodan Vucetic, Ph.D. 2001, Washington State University, Assistant Professor

II. Undergraduate Research Opportunities

Faculty members who have served as research mentors for undergraduate students, and the number of students under the tutelage of each:

- Z. Obradovic – has mentored four undergraduate students
- R. Lakaemper – has mentored nine undergraduate students
- L.J. Latecki – has mentored two undergraduate students
- V. Megalooikonomou – has mentored four undergraduate students (currently supporting two from an NIH grant)
- S. Vucetic – has mentored two undergraduate students

Grants to support undergraduate research opportunities:
- Obradovic, Z. and Vucetic, S., (June 2004 – Aug. 2004) "REU Supplement for ITR: Task-Specific Data Reduction and Mining for Spatial-Temporal Domains," National Science Foundation, $12,000.
- Megalooikonomou, V. Principal Investigator, National Science Foundation, Research Experiences for Undergraduates (REU), supplemental request to "CAREER: Extracting Patterns from Medical Image Databases", (IIS-0237921), 6/2005-8/2005, $12,000.
- Megalooikonomou, V. Principal Investigator, National Science Foundation, Research Experiences for Undergraduates (REU), supplemental request to "CAREER: Extracting Patterns from Medical Image Databases", (IIS-0237921), 6/2004-8/2004, $6,000.

III. Graduate Training

(A) Graduate students mentored

Ph.D. students

- Benjamin Garrett (teaching and research assistantship, advisor L. J. Latecki)
  - Research: Shape Similarity
- Bo Han (fellowship, teaching and research assistantship, advisor: Z. Obradovic)
  - Research: Spatial and Temporal Data Mining.
- Despina Kontos (research assistantship, advisor V. Megalooikonomou)
  - Research: Information Retrieval and Analysis in Spatial Databases.
- Guo Li (teaching and research assistantship, advisor V. Megalooikonomou)
  - Research: Similarity Searches in Time Series Databases.
- Yong Li (teaching assistantship, advisor: Z. Obradovic)
  - Research: Spatial and Temporal Data Mining.
- Uros Midic (research assistantship, advisor: Z. Obradovic)
  - Research: Bioinformatics.
- Roland Miezianko (advisor L. J. Latecki)
  - Research: Video Analysis
- Erickson Miranda (research assistantship, advisor: V. Megalooikonomou)
  - Research: Mining Medical Image Data.
- Kang Peng (fellowship and research assistantship, advisor: Z. Obradovic)
  - Research: Bioinformatics.
- Yilian Qin (teaching assistantship, advisor: Z. Obradovic)
  - Research: Spatial and Temporal Data Mining.
- Predrag Radivojac (research assistantship, advisor: Z. Obradovic)
  - Research Bioinformatics.
- Venugopal Rajagopal (teaching and research assistantship, advisor L. J. Latecki)
  - Research: Robot Mapping
- GuoQiang Shan (fellowship, advisor: V. Megalooikonomou)
  - Research: Vector Quantization and Fractals.
- Weigen Shang (teaching assistantship, advisor: S. Vucetic)

- o Research: Data Mining
- Hao Sun (teaching assistantship, advisor: S. Vucetic)
  - o Research: Data Mining
- Qiang Wang (research assistantship, advisor: V. Megalooikonomou)
  - o Research: Data Mining
- Wan Wang (teaching assistantship, advisor L. J. Latecki)
  - o Research: Robot Mapping
- Michael Xie (teaching and research assistantship, advisor: Z. Obradovic)
  - o Research: Bioinformatics
- Qifang Xu (teaching and research assistantship, advisor: Z. Obradovic)
  - o Research: Spatial and Temporal Data Mining.
  - o Research: Spatial Data Mining and Data Compression.
- Deguang (Jim) Yu (teaching assistantship, advisor L. J. Latecki)
  - o Research: Video Analysis

M.S. students

- Haimonti Dutta (advisor: V. Megalooikonomou)
- Nilesh Ghubade (teaching and research assistantship, advisor: L. J. Latecki)
- Meghneel Gore (advisor: S. Vucetic)
- Archana Gupta (advisor: L. J. Latecki)
- Kia Hall (advisor: V. Megalooikonomou)
- Weijun He (teaching assistantship, advisor: V. Megalooikonomou)
- Pooja Hegde (advisor: S. Vucetic)
- Parveen Jahan Lily (advisor: V. Megalooikonomou)
- Tao Jin (advisor: L. J. Latecki)
- Guo Li (teaching and research assistantship, advisor: V. Megalooikonomou)
- Eirini Karamani Liacouras (advisor: V. Megalooikonomou)
- Tek Lo (advisor: S. Vucetic)
- Despina Kontos (research assistantship, advisor: V. Megalooikonomou)
- Siva Kumar (advisor: L. J. Latecki)
- Abhiruchi Lanjewar (advisor: L. J. Latecki)
- Roland Miezianko (advisor: L. J. Latecki)
- Swetha Nandyala (advisor: S. Vucetic)
- Vivek Parameswaram (advisor: L. J. Latecki)
- Harish Ramachandra (advisor: L. J. Latecki)
- Sameer Raste (advisor: V. Megalooikonomou)
- Jinesh Sanghvi (advisor: L. J. Latecki)
- Hao Sun (advisor: S. Vucetic)

- Vladimir Vacic (teaching and research assistantship, advisor: S. Vucetic)
- Xinzhen Wang (advisor: L. J. Latecki)
- Zheng (Sonia) Yuan (advisor: V. Megalooikonomou)
- Jiesong Zhu (advisor: V. Megalooikonomou)

(B) Dissertations completed

- Predrag Radivojac (advisor: Z. Obradovic)
    - Dissertation: "Classification and Knowledge Discovery in Protein Databases," Fall 2003.
    - First Ph.D. position: Research Associate, School of Medicine, Indiana University.
- Jaiwant Mulik (advisor: L. J. Latecki)
    - Dissertation: A FRAMEWORK TO CREATE RESOURCE-BOUNDED NETWORK SERVICES, Summer 2004.
    - First Ph.D. position: Assistant Professor, Computer Science Dept., Delaware State University, Dover.
- Dragoljub Pokrajac (advisor: Z. Obradovic)
    - Dissertation: "Knowledge Discovery in Spatial-Temporal Databases," Summer 2002.
    - First Ph.D. position: Assistant Professor, Computer Science Dept., Delaware State University.
- Aleksandar Lazarevic (advisor: Z. Obradovic)
    - Dissertation: "Distributed Inductive Learning for Time/Space Data Analysis," Fall 2001.
    - First Ph.D. position: Research Associate, Army High Performance Computing Research Center, Computer Science Dept., University of Minnesota.

IV. Research Activities

(A) Research Grants

ZORAN OBRADOVIC

- Soprano, D.R., Soprano, K.J., Obradovic, Z. and Vucetic, S. (April. 2005 – Dec. 2009) "PBX and Retinoic Acid-Dependent Differentiation," National Institute of Health, NIH- 1 R01 DK070650-01, $1,586,250.
- Megalooikonomou, V., Obradovic, Z., Boyko, O.B., Gee, J. (January 2004 – December 2007) "Large Scale Data Analysis for Brain Images," *National Institute of Health*, Grant NGA: 1 R01 MHO68066-01A1, $1,284,246.
- Dunker, A.K., and Obradovic, Z. (Sept. 2003 – Sept. 2007) "Bioinformatics Linkage of Protein Disorder and Function," *National Institute of Health*, Grant R01 LM007688-01A1, $1,291,356.
- Obradovic, Z. and Vucetic, S., (August 2002 - August 2005) "ITR/Small/Scientific Frontiers: Task-Specific Data Reduction and Mining in Spatial-Temporal Domains," National Science Foundation, Grant 0219736, $210,120.
- Obradovic, Z. and Vucetic, S., (June 2004 – Aug. 2004) "REU Supplement for ITR: Task-Specific Data Reduction and Mining for Spatial-Temporal Domains," National Science Foundation, $12,000.
- Kwatny, E., Stafford, R., Megalooikonomou, V. and Obradovic, Z., (Sept. 2001 - Sept. 2004) High Performance Network Connection for Knowledge Discovery Research*," National Science Foundation,* Grant NSF-ANIR-0124390, $353,100 ($ 150,000 from NSF).
- Obradovic, Z. and Vucetic, S. (June 2004 – June 2006) "Applications of Bioinformatics Data Analysis to Cardiovascular and Cancer Research," *The Pennsylvania Department of Health*, $250,000 (direct costs).
- Obradovic, Z. and Vucetic, S. (January 2004 – June 2004) "Research Infrastructure and Expertise for Gene Expression Data Analysis," *The Pennsylvania Department of Health*, $70,000 (direct costs).
- Obradovic, Z., Chang, F.N., Tuszynski, G. P. and Vucetic, S. (January 2004 – June 2004) "Mining High Performance Liquid Electrophoresis Data," *Temple University*, $8,000 (direct costs).
- Wolfgang, P., Obradovic, Z., Megalooikonomou, V. and Vucetic, S., (June 2003 – December 2003) "Visualization and Analysis of Commercial Flight Data," Lockheed Martin Corp., $49,000
- Obradovic, Z. (January 2003 – August 2004) "An Efficient System for Discovering Patterns and Associations at Earth Observation Databases," New Previously Unfunded Directions for Established Investigators Grant Application, *Temple University*, $30,000.
- Obradovic, Z. (March 2001 - September 2001) "Data Reduction for Spatial-Temporal Knowledge Discovery," *Idaho National Engineering and Environmental Laboratory*, LDRD Program under DOE contract DE-AC07-99ID13727, $50,000.
- Dunker, A.K and Obradovic, Z., (May 2000 - May 2003) "Bioinformatics, Disordered Proteins and Function," *The National Institute of Health,* Grant 1 R01 LM06916-01, Biotechnology, $984,026
- Obradovic, Z. and Tomsovic, K., (August 2000 - August 2004) "Towards an Understanding of Deregulated Electricity Markets through Time Series Analysis," Power Systems and Intelligent Systems Programs, Division of Engineering*, National Science Foundation*, Grant ECS-9988626, $240,000.

- Obradovic, Z. and Dunker, A.K., (June 1998 - December 2001) "Intelligent Data Analysis for Identifying Protein Disorder," cross-disciplinary funding by KDI Knowledge and Distributed Intelligence Initiative, Division of Information and Intelligent Systems and Division of Molecular and Cellular Biosciences, *National Science Foundation*, Grant IIS-9711532, $379,910.
- Obradovic, Z. and Dunker, A.K., (January 2000 - May 2001) "Supplement to Intelligent Data Analysis for Identifying Protein Disorder," Knowledge and Cognitive Systems Program, *National Science Foundation*, $50,858.

ROLF LAKAEMPER

- Latecki, LJ, Lakaemper, R, Pizlo, Z, (07/15/05-06/30/08) "Collaborative Research: From Edge Pixels to Recognition of Parts of Object Contours," *National Science Foundation*, Computer Vision Program: IIS-0534929, $264,208.

LONGIN JAN LATECKI

- Latecki, LJ, Lakaemper, R, Pizlo, Z, (07/15/05-06/30/08) "Collaborative Research: From Edge Pixels to Recognition of Parts of Object Contours," *National Science Foundation*, Computer Vision Program: IIS-0534929, $264,208.
- Latecki, LJ, (*06/01/05-05/31/*06) "Geometric Robot Mapping," *National Institute of Standards and Technology*, NIST 70NANB5H11119, $19,850.
- Latecki, LJ, (08/01/03-07/31/05)Robot Localization and Robot Mapping Based on Shape Matching, *National Science Foundation*, NSF INT-0331786, $50,415
- Latecki, LJ, (07/01/03-06/01/04) Robot Localization and Robot Mapping, Office of the Vice Provost for Research - Research Incentive Grant, *Temple University*, $25,500.
- Latecki, LJ, (06/1/02-05/31/03) Shape Similarity Retrieval Based on Visual Parts, Office of the Vice Provost for Research - Research Incentive Grant, *Temple University*, $19,000
- Latecki, LJ, (04/26/02-04/26/03) Geometry of Video Trajectory, Office of the Vice Provost for Research - Research Incentive Fund, *Temple University*, $4,557.

VASILEIOS MEGALOIKONOMOU

- Megalooikonomou, V. (PI), (9/2003 – 8/2008) "CAREER: Extracting Patterns from Medical Image Databases', *National Science Foundation*, Grant NSF-IIS-0237921, requested $535,443, received $401,422.
- Megalooikonomou, V. (PI), Obradovic, Z., Boyko, O.B., Gee, J., Woodruff-Pak, D., (1/2004 – 12/2007) "Large Scale Data Analysis for Brain Images," *National Institutes of Health*, Grant NIH R01 MH68066, requested $1,338,224, received $1,284,246.
- Megalooikonomou, V. (PI), (6/2005-8/2005), Research Experiences for Undergraduates (REU), supplemental request to "CAREER: Extracting Patterns from Medical Image Databases" *National Science Foundation*, Grant NSF-IIS-0237921, $12,000.
- Megalooikonomou, V. (PI), (6/2004-8/2004), Research Experiences for Undergraduates (REU), supplemental request to "CAREER: Extracting Patterns from Medical Image Databases" *National Science Foundation*, Grant NSF-IIS-0237921, $6,000.
- Makedon, F. (PI), Megalooikonomou, V., Saykin, A., (5/2001 – 4/2004), ``Mining Human Brain Data: Analysis, Classification, and Visualization of Probabilistic 3D Objects'', *National Science Foundation*, Grant NSF-IIS-0083423, requested $697,248, received $654,000.

- Kwatny, E. (PI), Stafford, R., Megalooikonomou, V. and Obradovic, Z., (9/2001 – 9/2004), High Performance Network Connection for Knowledge Discovery Research*," National Science Foundation,* Grant NSF-ANIR-0124390, $353,100 ($150,000 from NSF).
- Megalooikonomou, V. (PI), (2/2002 – 6/2003), "Mining 3-D Medical Image Data", *Pennsylvania Department of Health, Temple University Return of Overhead Research Incentive Grant Program*, $42,463.
- Wolfgang, P. (PI), Obradovic, Z., Megalooikonomou, V., Lakamper, R., and Vucetic, S., (1/2003 – 5/2004) "Visualization and Analysis of Commercial Flight Data," *Lockheed Martin Corp.,* $55,000.
- Herskovits E. (PI), Megalooikonomou, V., Davatzikos C., (1999-2002), "Spatially Oriented Database for Digital Brain Images", (Johns Hopkins University), *National Institutes of Health*, Grant NIH R01 AG13743, received: $848,138.

SLOBODAN VUCETIC

- Soprano, D.R., Soprano, K.J., Obradovic, Z. and Vucetic, S. (April. 2005 – Dec. 2009) "PBX and Retinoic Acid-Dependent Differentiation," National Institute of Health, NIH-1 R01 DK070650-01, $1,586,250.
- Obradovic, Z. and Vucetic, S., (August 2002 - August 2005) "ITR/Small/Scientific Frontiers: Task-Specific Data Reduction and Mining in Spatial-Temporal Domains," National Science Foundation, Grant 0219736, $210,120.
- Obradovic, Z. and Vucetic, S., (June 2004 – Aug. 2004) "REU Supplement for ITR: Task-Specific Data Reduction and Mining for Spatial-Temporal Domains," National Science Foundation, $12,000.
- Obradovic, Z. and Vucetic, S. (June 2004 – June 2006) "Applications of Bioinformatics Data Analysis to Cardiovascular and Cancer Research," *The Pennsylvania Department of Health*, $250,000 (direct costs).
- Obradovic, Z. and Vucetic, S. (January 2004 – June 2004) "Research Infrastructure and Expertise for Gene Expression Data Analysis," *The Pennsylvania Department of Health*, $70,000 (direct costs).
- Obradovic, Z., Chang, F.N., Tuszynski, G. P. and Vucetic, S. (January 2004 – June 2004) "Mining High Performance Liquid Electrophoresis Data," *Temple University*, $8,000 (direct costs).
- Wolfgang, P., Obradovic, Z., Megalooikonomou, V. and Vucetic, S., (June 2003 – December 2003) "Visualization and Analysis of Commercial Flight Data," Lockheed Martin Corp., $49,000.

(B) Awards and Honors.

ZORAN OBRADOVIC:

- Team leader for the best predictor in protein disorder category at fifth and the sixth critical assessments of structure prediction experiments (CASP 5 and CASP 6), 2002 and 2004.

Executive Committee Member:
- Greater Philadelphia Bioinformatics Alliance (BioAdvance, The Children's Hospital of Philadelphia, Drexel University, Fox Chase Cancer Center, Penn State, Temple University, Thomas Jefferson University, University of Pennsylvania, University of the Sciences in Philadelphia, The Wistar Institute), 2002 – Present.

Advisory Board and Scientific Committee:
- International Artificial Intelligence Knowledge Society, 2005 – Present

Editorial Board Member:
- International Journal of Data Mining and Bioinformatics, 2005 – Present.
- Multiple Valued Logic journal, 1995 - Present.
- IEEE Trans. on Education, 1997- 2001.
- Journal of Computational Intelligence in Finance, 1995 - 1999.

Guest Editor:
- *Knowledge and Information Systems*, Special Issue on Selected and Revised Papers from KDD-2000 Workshop on Distributed and Parallel Knowledge Discovery, vol. 3, no. 4, 2001. (co-edited with J. Ghosh, H. Kargupta and V. Kumar)
- *Journal of Computational Intelligence in Finance*, Special Issue on Financial News Analysis using Distributed Data Mining, vol. 7, no. 2, March 1999, (co-edited with S.H. Rubin).
- *Journal of Computational Intelligence in Finance,* Special Issue on Hybrid Neural Networks for Financial Forecasting, vol. 5, no. 1., January 1997.

Program Chair or Program Committee Member:
- *The 38th Symposium on the Interface of Statistics, Computing Science and Applications,* Pasadena, CA, May 2006.
- *Sixth SIAM International Conference on Data Mining, Program Vice Chair for Bio-Medical Informatics Track, Bethesda, Maryland, April 2006.*
- *5th IEEE Symposium on Bioinformatics and Bioengineering*, Minneapolis, Minnesota, Oct. 2005.
- *IEEE Region 8 EUROCON Int'l Conf. on Computer as a Tool,* Belgrade, Serbia&Montenegro, Nov. 2005.
- *4th Int'l Conf. Computational Intelligence in Economics and Finance*, special session on Forecasting Volatility in Financial Market, Salt Lake City, Utah, July 2005.
- *2005 IEEE Int'l Conf. Mechatronics and Automation,* Niagara Falls, Canada, July, 2005.
- *Fifth SIAM International Conference on Data Mining*, Newport Beach, CA, April, 2005.
- *Emerging Information Technology Conference*, Princeton University, Oct. 2004.
- *Fourth SIAM International Conference on Data Mining*, Orlando, FL, April, 2004.
- *Bioinformatics Workshop at the Fourth SIAM International Conference on Data Mining,* Orlando, FL, April, 2004.
- *3rd Workshop on Bioinformatics in Data Mining* (BIOKDD 2003), ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 27th August, Washington, DC.
- *Third SIAM International Conference on Data Mining*, San Francisco, CA, May, 2003.
- *Sixth Workshop on Mining Scientific Dataset*, San Francisco, CA, May 2003.
- Second Workshop on Data Mining in Bioinformatics, *The Eight ACM SIGKDD Int'l Conf. on Knowledge Discovery and Data Mining,* Edmonton, Alberta, Canada, July 2002.
- *Int'l Conf. on Neural Networks Applications in Electrical Engineering*, Belgrade, Yugoslavia, September 2002.
- Distributed and Parallel Knowledge Discovery Workshop, *The Sixth ACM SIGKDD Int'l. Conf. on Knowledge Discovery and Data Mining*, co-chair with P. Chan, J. Ghosh, H. Kargupta and V. Kumar, Boston, August, 2000.

- Soft Computing in Financial Markets Conference, *Int'l Congress on Computational Intelligence*
- *Methods and Applications*, Rochester Institute of Technology, N.Y., June, 1999.
- Distributed and Parallel Data Mining Workshop, *Knowledge Discovery in Databases Conference*,
- New York City, N.Y., August, 1998.
- *4th Int'l Conf. on Neural Networks Applications in Electrical Engineering*, Belgrade, Yugoslavia, September 1997.

Advising Expert:
- Bioinformatics Faculty Recruitment Committee, Faculty of Science and Technology, Uppsala University, Sweden, 2003.

Grant Proposal Review Panel Member:
- The National Science Foundation, Directorate for Computer and Information Science and Engineering, Division of Information and Intelligent Systems, 1996, 1998, 1999, 2003 and 2004.
- The First Int'l Nonlinear Financial Forecasting Competition, Performance Analyst Evaluating Prediction Strategy Entries, 1996.

ROLF LAKAEMPER

Invited Speaker:
- International Spatial Cognition Summer Institute (ISCSI) in Bad Zwischenahn, Germany, 24 Aug - 6 Sep 2003
- RoboCup Rescue Camp, Rome, Oct. 2004

Reviewer:
- 2004/5   Reviewer for *IEEE Trans. on Pattern Analysis and   Machine Intelligence (PAMI),*
- Reviewer for IEEE International Conference on Image Processing (ICIP 2004), Singapore, 10/2004
- Reviewer for IEEE International Conference on Image Processing (ICIP 2005), Genova, 9/2005

LONGIN JAN LATECKI

Editorial Board Member:
- Pattern Recognition

Conference Chair:
- *SPIE Conference on Vision Geometry XI*, Seattle, Washington, July 2002.
- *SPIE Conference on Vision Geometry XII*, San Jose, California, Jan. 2004.
- *IS&T-SPIE Conference on Vision Geometry XIII*, San Jose, California, Jan. 2005.
- Demo and Poster Chair of the *IEEE Workshop Object Tracking and Classification Beyond the Visible Spectrum*, San Diego, California, June 2005.
- *IS&T-SPIE Conference on Vision Geometry XIV*, San Jose, California, Jan. 2006.

Invited Speaker:

- *11th Int. Workshop on Combinatorial Image Analysis (IWCIA)*, Humbold University, Berlin, Germany, June 21-27,
- *11th Int. Conf. on Discrete Geometry for Computer Imagery (DGCI)* in Naples, Italy, 19-21 November 2003.

Program Committee Member:
- Int. Conf. on Pattern Recognition (ICPR), Hong Kong, China, August 2006
- 9th Pacific Rim Int. Conf. on Artificial Intelligence (PRICAI), Guilin, China, August 2006
- 11th Int. Workshop on Combinatorial Image Analysis (IWCIA), Humbold University, Berlin, Germany, June 2006
- IS&T/SPIE 18th Annual Symposium on Electronic Imaging, San Jose, California, January 2006
- IAPR Int. Conf. on Data Mining and Machine Learning, Leipzig, Germany, July 2005
- Int. Conf. on Advanced Data Mining and Applications, Wuhan, China, July 2005
- IEEE Workshop Object Tracking and Classification Beyond the Visible Spectrum, San Diego, California, June 2005
- SIAM Conference on Imaging Science, 2004.

Reviewer:
- National Science Foundation (NSF)
- IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI)
- IEEE Transactions on Image Processing
- IEEE Transactions on Systems, Man and Cybernetics
- Computer Vision and Image Understanding (CVIU)
- Graphical Models and Image Processing (GIMP)
- Information Sciences (IS)
- Journal of Mathematical Imaging and Vision (JMIV)
- Pattern Recognition (PR)
- Pattern Recognition Letters (PRL)
- Artificial Intelligence (AI)
- Image and Vision Computing Journal(IVC)
- Pattern Analysis and Applications Journal
- Computer & Graphics Journal
- Eurasip Journal on Applied Signal Processing

VASILEIOS MEGALOOIKONOMOU

Awards:
- National Science Foundation, Faculty Early Career Development (CAREER) Award, 2003. Title: Extracting Patterns from Medical Image Databases, $401,422 for 5 years.

Conference Organization:
- Program co-Chair (Bioengineering), 3rd IEEE Symposium on Bioinformatics and Bioengineering (BIBE), Washington, DC, March 10-12, 2003.

Program Committee Member:
- PC member, SIAM Data Mining Conference (SDM), 2004, 2005, 2006.
- PC member, International Workshop on Biomedical Data Engineering (BMDE), 2005, part of IEEE International Conference on Data Engineering (ICDE) 2005.

- PC member, 9th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), Washington, DC, Aug. 24-27, 2003.
- PC member, International Conference on Machine Learning and Applications (ICMLA), Los Angeles, California, June 23-24, 2003.
- PC member, 3rd IEEE Symposium on Bioinformatics and Bioengineering (BIBE), Washington, DC, March 10-12, 2003.
- PC member, the World Multiconference on Systemics, Cybernetics and Informatics (SCI) and the International Conference on Information Systems Analysis and Synthesis (ISAS), Orlando, Florida, 1998 and 1999.

Grant Proposal Review Panel Member:
- The National Science Foundation (NSF), Directorate for Computer and Information Science and Engineering, Division of Information and Intelligent Systems, 2001, 2002 and 2003.
- The National Institutes of Health (NIH), National Centers for Biomedical Computing, May 2005.

Grant Proposal Reviewer:
- The United States National Aeronautics and Space Administration (NASA), 2004.
- Kentucky Science and Engineering Foundation (KSEF), 2005.

Journal Reviewer:
- IEEE Transactions on Information Theory, 2003-2004.
- IEEE Transactions on Knowledge and Data Engineering, 2001-2003.
- IEEE Transactions on Systems, Man and Cybernetics, 2003.
- IEEE Transactions on Signal Processing, 2004.
- Image and Vision Computing, 2005.
- Information Processing Letters, 2004.
- NeuroImage, 2003.
- Journal of Systems and Software, 2003.
- Journal of Electronic Imaging, 2001-2002.
- Archives of General Psychiatry, 2000.
- Pattern Recognition, 2000.

Invited Talks:
- "Data Mining in 3D Medical Image Databases", Department of Computer Engineering and Informatics, University of Patras, Greece, June 2004.
- "Mining of Brain Image Data", A Decade of Neuroscience Informatics: Looking Ahead, The National Institutes of Health, Bethesda, MD, Apr. 2004.
- "Extracting Patterns from 3-D Medical Image Databases", Computer Science Department, Dartmouth College, Hanover, NH, July 2003.
- "Data Mining in 3-D Medical Image Databases", General Robotics, Automation, Sensing, and Perception (GRASP) Laboratory, University of Pennsylvania, July 2001.
- "Data Mining in Brain Imaging", Center for Computer Science and Applied Mathematics, Temple University, PA, May 2001.

SLOBODAN VUCETIC

- Team member for the best predictor in protein disorder category at fifth and the sixth critical assessments of structure prediction experiments (CASP 5 and CASP 6), 2002 and 2004.

Reviewer for:
- 2004 NSF Panel Member – Grant proposal review for CISE Directorate.
- 2004, 2005 Kentucky Initiative – Grant proposal review.
- 2005 Best Technological Innovation Award, Serbian Science Foundation – Grant proposal review.
- IEEE Transactions on Systems, Man and Cybernetics 2003.
- IEEE Transactions on Neural Networks 2004.
- IEEE Transactions on Power Systems 2003, 2005.
- Knowledge and Data Engineering, 2005.
- International Conference on Machine Learning and Data Mining, 2005.
- Pacific Symposium on Biocomputing, 2005, 2006.
- SIAM International Conf. on Data Mining, San Francisco, CA, 2003.
- International Conference on Intelligent Systems for Molecular Biology, 2002.

Invited Lectures:
- "Target selection in structural genomics using contrast classifiers," 2005 Applied Mathematics Summer Workshop, Delaware State University.
- "Bioinformatics Approach to Study of Protein Disorder," at Concepts and Application in Proteomics and Bioinformatics Workshop, Temple University School of Medicine, 2003
- "Contrast Classifiers for Learning from Biased Biological Data," at Greater Philadelphia Bioinformatics Alliance, Retreat at Merion Tribute House, 2003.

(C) Publications

ZORAN OBRADOVIC

Publications in 2000 – 2005 period

Peer Reviewed Book Chapters

1. Obradovic, Z. and Vucetic, S. (2004) "Challenges in Scientific Data Mining: Heterogeneous, Biased, and Large Sample," a peer reviewed book chapter at *The Next Generation Data Mining* (editors: H. Kargupta, A. Joshi, K. Sivakumar, Y. Yesha). AAAI/MIT Press, pp. 381-401.
2. Drossu, R. and Obradovic, Z. (2000) "Data Mining Techniques for Designing Efficient Neural Network Time Series Predictors," peer reviewed book chapter no. 10 in Cloete, I. and Zurada, J. *Knowledge-Based Neurocomputing*, MIT Press, pp. 325-368.
3. Romero, P., Obradovic, Z. and Fletcher J. (2000) "Integration of Heterogeneous Sources of Partial Domain Knowledge," peer reviewed book chapter no. 7 in Cloete, I. and Zurada, *J. Knowledge-Based Neurocomputing*, MIT Press, pp. 217-250.

Journal Articles

4. Radivojac, P., Vucetic, S., O'Connor, T.R., Uversky, V.N., Obradovic, Z. and Dunker, A.K. "Calmodulin Signaling: Analysis and Prediction of a Disorder-Dependent Molecular Recognition," *Proteins: Structure, Function and Bioinformatics*, in press.

5. *Obradovic, Z., Peng, K., Vucetic, S., Radivojac, P., and Dunker, A.K. "Exploiting Heterogeneous Sequence Properties Improves Prediction of Protein Disorder," Proteins: Structure, Function and Genetics, in press.*

6. *Peng, K., Vucetic, S., Radivojac, P., Brown, C.J., Dunker, A.K. and Obradovic, Z. (2005) "Optimizing Long Intrinsic Disorder Predictors with Protein Evolutionary Information," Journal of Bioinformatics and Computational Biology, vol. 3, no. 1, pp. 35-60.*

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LONGIN JAN LATECKI

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