

Daniel R. Kunkle

Northeastern University
College of Computer and Information Science
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- EDUCATION
- ◇ **Northeastern University**, Boston, MA.
Ph.D. in Computer Science, entered program Fall, 2004.
Tentative Thesis Title: *Proving the Diameter of Very Large Implicit Graphs*
Research Interests: combinatorial optimization, high performance computing, and adaptive systems.
 - ◇ **Rochester Institute of Technology**, Rochester, NY.
M.S. in Computer Science, received August, 2003. GPA: 4.0/4.0
Thesis title: *Automatically Classifying One-Dimensional Cellular Automata*
 - ◇ **Rochester Institute of Technology**, Rochester, NY.
B.S., Highest Honors, received May, 2001. GPA: 3.91/4.0
Majored in Information Technology
Minored in Science, Technology, The Environment & Society
- ACADEMIC EXPERIENCE
- ◇ **Graduate Assistant**, College of Computer and Information Science, Northeastern University, Boston, MA
Research Assistant: Academic year 2006
 - Research assistant to Prof. Gene Cooperman. Researched, designed, and developed techniques for very large search and enumeration problems.Teaching Assistant: Academic years 2004, 2005
 - Developed and taught lab sessions for introductory computer science courses, provided office hours, and evaluated student progress.
 - ◇ **Researcher**, Laboratory for Applied Computing, Rochester Institute of Technology, Rochester, NY
6/2002 to 10/2002
 - Researched and developed genetic algorithms for optimizing halftone masks to produce superior printed images.
 - ◇ **Graduate Assistant**, Department of Computer Science, Rochester Institute of Technology, Rochester, NY
9/2001 to 5/2002
 - Designed and implemented web-based information systems.
- PROFESSIONAL EXPERIENCE
- ◇ **Research Intern**, Network Appliance (Advanced Development Group), Waltham, MA, 1/2006 to 8/2006
 - Developed a new framework for automatic load balancing in clustered storage systems.
 - Experimentally analyzed this new load balancing system using several clustered storage systems handling a variety of real workloads.
 - ◇ **Research Intern**, MIT Lincoln Laboratory, Lexington, MA, 5/2006 to 8/2006

- Researched and designed several novel methods for automatic parallelization of serial programs, including the use of evolutionary algorithms and graph-based techniques.
- Implemented these new methods in an existing Matlab-based system and demonstrated improvements over previous techniques.
- ◇ **Consultant**, DARPA SAPIENT Program, BAA 04-32, Situation-Aware Protocols In Edge Network Technologies
6/2005 to 9/2005
 - Researched and developed multiobjective evolutionary algorithms for inclusion in a system to select the optimal network communication protocol in response to real-time impairments.
- ◇ **Principal Partner**, RedfishGroup, Santa Fe, NM
11/2002 to 8/2004
 - Developed software for the modeling, visualization, and optimization of a wide range of commercial and governmental organizations.
 - Performed research in complex adaptive systems and self-organization.
- ◇ **Intern**, BiosGroup, Santa Fe, NM (since acquired by NuTech Solutions)
6/2001 to 9/2001
 - Developed applications for 3D visualization and manipulation of models of complex and self-organizing systems.
- ◇ **Database Administrator**, College of Applied Science and Technology, Rochester Institute of Technology, Rochester, NY
2/2000 to 9/2000
 - Designed and implemented web-based information systems.
- ◇ **Software Test Engineer**, Xerox Corporation, Rochester, NY
6/1999 to 9/1999
 - Designed and executed procedures to insure quality of large software systems.

CONFERENCE
PUBLICATIONS

- ◇ D. Kunkle and G. Cooperman. “Twenty-Six Moves Suffice for Rubik’s Cube”, Proc. of International Symposium on Symbolic and Algebraic Computation (ISSAC ’07), ACM Press, 235–242, 2007.
- ◇ E. Robinson, D. Kunkle, and G. Cooperman. “A Comparative Analysis of Parallel Disk-Based Methods for Enumerating Implicit Graphs”, International Workshop on Parallel Symbolic Computation (PASCO ’07), London, Ontario, 78–87, 2007.
- ◇ D. Kunkle, D. Zhang, and G. Cooperman. “Efficient Mining of Max Frequent Patterns in a Generalized Environment” (poster paper), Proceedings of the 15th ACM Conference on Information and Knowledge Management (CIKM), Arlington, VA, 810–811, 2006.
- ◇ M. Agar, S. Guerin, R. Holmes, and D. Kunkle. “DrugSim: the Structure of Agent-based Revolutions”, Proceedings of Agent 2004: Social Dynamics: Interaction, Reflexivity and Emergence, Chicago, October 2004.
- ◇ M. Gambhir, S. Guerin, S. Kauffman, D. Kunkle. “Steps Toward a Possible Theory of Organization”, Proceedings of the International Conference on Complex Systems, Boston, 2004.
- ◇ P. Anderson, J. Arney, S. Inverso, D. Kunkle, T. Lebo, and C. Merrigan. “A Genetic Algorithm Search for Improved Halftone Masks”. Proceedings of Artificial Neural Networks in Engineering (ANNIE ’03), St. Louis, November 2003.
- ◇ S. Boyle, S. Guerin, J. Pratt, and D. Kunkle. “Application of Agent-Based Simulation to Policy Appraisal in the Criminal Justice System in England”, Proceedings of Agent 2003: Challenges in Social Simulation, Chicago, October 2003.

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- JOURNAL AND BOOK PUBLICATIONS
- ◇ D. Kunkle, D. Zhang, and G. Cooperman. “On Mining Frequent Generalized Itemsets and Essential Generalized Association Rules without Redundancy”, *Journal of Computer Science and Technology (JCST)*, P. R. China (to appear).
 - ◇ S. Boyle, S. Guerin, and D. Kunkle. “An Application of Multi-agent Simulation to Policy Appraisal in the Criminal Justice System in England”, in *Computational Economics: A Perspective from Computational Intelligence*, Idea Group Publishing, Pennsylvania, 2005.
 - ◇ S. Guerin and D. Kunkle. “Emergence of Constraint in Self-organizing Systems”, *Journal of Nonlinear Dynamics, Psychology, and Life Sciences*, Vol. 8, No. 2, April, 2004.
- INVITED TALKS
- ◇ “Twenty-Six Moves Suffice for Rubik’s Cube”, ITA Software, Cambridge, MA, August, 2007.
- AWARDS AND MEMBERSHIPS
- ◇ Distinguished Citizenship Award, Northeastern University, CCIS (2007)
 - ◇ Student Representative to PhD Committee, Northeastern University, CCIS (2006 and 2007)
 - ◇ ACM Member
 - ◇ RIT Outstanding Undergraduate Scholarship (2001)
 - ◇ Phi Kappa Phi Honor Society Member
- REFERENCES
- References and academic transcripts are available by request.