

Christopher M. Bourke

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Education

Ph.D. Computer Science, *University of Nebraska—Lincoln*, December 2008.

M.S. Computer Science, *University of Nebraska—Lincoln*, May 2004.

B.S. Computer Science & Mathematics, *University of Nebraska—Lincoln*, May 2002 (minors: Japanese & Asian Studies).

Research & Work Experience

Research Assistant 2002–current
University of Nebraska—Lincoln
Research in Computational Complexity Theory and Machine Learning under the supervision of Dr. Vinodchandran Variyam (advisor). Supported by National Science Foundation grant CCF-0430991.

Assistant Coordinator 2007 – current
Dr. Sharad C. Seth University of Nebraska—Lincoln
Assistant Coordinator for the development of the Graduate Admissions & Management System (GAMES) for graduate admissions at the University of Nebraska—Lincoln.

Teaching Experience

Lecturer, *Introduction to Discrete Mathematics* and *Introduction to Problem Solving with Computers*, Spring 2009.

Lecturer, *Introduction to C Programming*, University of Nebraska—Lincoln, Spring 2008.

Lecturer, *Discrete Mathematics*, Fall 2005.

Lecturer, *Data Structures & Algorithms*, Summer 2004.

Graduate Teaching Assistant, various courses, University of Nebraska—Lincoln, Fall 2002–current.

Honors and Awards

Hazel V. Emley Fellowship 2007 – 2008.

National Science Foundation Award No. OISE-0611220, “NSF East Asia and Pacific Summer Institutes for US Graduate Students,” Summer 2006.

Outstanding Graduate Teacher Award, UNL, 2006.

Eastman Memorial Scholarship – UNL Mathematics Department, 2001.

Bridging Scholarship – Association of Teachers of Japanese, 2000.

M. & S. Wagner Scholarship – UNL Modern Languages Department, 1999.

James Canfield Scholarship – UNL, 1997.

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Service

Graduate Student Representative – Computer Science & Engineering Curriculum Committee 2008 – 2009.

Reviewer for journals *Information and Computation*, *Theory of Computing Systems* and conferences Foundations of Software Technology and Theoretical Computer Science 2007, IEEE International Conference on Electro/Information Technology, 2008.

List of Collaborators

Dr. Vinodchandran Variyam, *University of Nebraska–Lincoln*.

Dr. Stephen Scott, *University of Nebraska–Lincoln*.

Dr. John Hitchcock, *University of Wyoming*.

Dr. Robert Schapire, *Princeton University*.

Publications

Journals

Chris Bourke, Raghunath Tewari, and N. V. Vinodchandran. Directed planar reachability is in unambiguous log-space. *ACM Transactions on Computation Theory*, To Appear.

Chris Bourke, Kun Deng, Stephen D. Scott, Robert E. Schapire, and N. V. Vinodchandran. On reoptimizing multi-class classifiers. *Machine Learning*, 2008. To appear.

Chris Bourke, John M. Hitchcock, and N. V. Vinodchandran. Entropy rates and finite-state dimension. *Theoretical Computer Science*, 349(3):392–406, 2005.

Conferences

Chris Bourke, Raghunath Tewari, and N. V. Vinodchandran. Directed planar reachability is in unambiguous log-space. In *Proceedings of the 22nd Annual IEEE Conference on Computational Complexity*, pages 217–221, 2007.

Deng Kun, Chris Bourke, Stephen Scott, Julie Sunderman, and Yaling Zheng. Bandit-based algorithms for budgeted learning. In *Proceedings of IEEE International Conference on Data Mining (ICDM)*, pages 463–468, 2007.

Deng Kun, Chris Bourke, Stephen Scott, and N. V. Vinodchandran. New algorithms for optimizing multi-class classifiers via ROC surfaces. In *Proceedings of the 3rd International Workshop ROC Analysis in Machine Learning (ROCML-2006)*, pages 17–24, June 2006. Held within the 23rd International Conference on Machine Learning (ICML'06).

Manuscripts

Derrick Stolee, Chris Bourke, and N. V. Vinodchandran. A log-space algorithm for reachability in planar dags with few sources. Under Review, 2008.

Chris Bourke. *Contributions to Computational Complexity and Machine Learning: Unambiguity in Log-space Computations and Reoptimizing Multi-Class Classifiers*. PhD thesis, University of Nebraska—Lincoln, 2008.

Chris Bourke. A note on the Karp-Lipton collapse for the exponential hierarchy. Technical Report UNL-CSE-2007-0004, University of Nebraska—Lincoln, 2007.

Chris Bourke. Finite-state dimension of individual sequences. Master's thesis, University of Nebraska—Lincoln, May 2004.