

TUĞKAN BATU

Department of Mathematics
London School of Economics
London, WC2A 2AE
United Kingdom

T.Batu@lse.ac.uk
<http://www.maths.lse.ac.uk/Personal/batu>
office: +44 (0)20 7955 6540
fax: +44 (0)20 7955 6877

- Education**
- CORNELL UNIVERSITY, ITHACA, NY Ph.D. Computer Science, August 2001
Advisor: Ronitt Rubinfeld
Dissertation title: Testing Properties of Distributions
Minor field: Mathematics
 - CORNELL UNIVERSITY, ITHACA, NY M.S. Computer Science, May 2000
 - BILKENT UNIVERSITY, ANKARA, TURKEY B.S. Computer Science, June 1996
Graduated with high honors.
- Research Interests**
- Design and analysis of algorithms, sublinear algorithms on massive data sets, randomized computation, string algorithms, property testing, computational statistics, computational complexity.
- Research and Professional Experience**
- Lecturer (September 2006 – Present), Department of Mathematics, London School of Economics, London, UK.
 - Postdoctoral Fellow (September 2004 – August 2006), School of Computing Science, Simon Fraser University, Burnaby, BC. Hosts: Funda Ergun and Cenk Sahinalp.
 - Postdoctoral Fellow (September 2003 – June 2004), Department of Computer Sciences, University of Texas, Austin, TX. Host: David Zuckerman.
 - Postdoctoral Fellow (August 2001 – August 2003), Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA. Host: Sampath Kannan.
 - Summer Research Assistant (July – August 2000), NEC Research Institute, Princeton, NJ.
 - Lecturer (Summer 1997, Fall 1997, Fall 1998, Fall 1999), Computer Science Department, Cornell University, Ithaca, NY.
 - Research and Teaching Assistant (September 1996 – August 2001), Computer Science Department, Cornell University, Ithaca, NY.
- Teaching Experience**
- MA417, Computational Methods in Finance, LSE. Lecturer. Lent Term 2009, Lent Term 2010 (with Prof Michalis Zervos), Lent Term 2011 (with Dr Luitgard Veraart).

- MA400, September Introductory Course (Financial Mathematics), LSE. Lecturer (with Michalis Zervos). September 2008, September 2010.
- MA401, Computational Learning Theory and Neural Networks, LSE. Lecturer. Michaelmas Term 2007, Lent Term 2010, Michaelmas Term 2010.
- MA407, Algorithms and Computation, LSE. Lecturer (with Prof Bernhard von Stengel). Lent Term 2007, Lent Term 2008, Michaelmas Term 2010.
- MA314, Theory of Algorithms, LSE. Lecturer. Michaelmas Term 2006, Michaelmas Term 2007, Michaelmas Term 2008.
- CMPT881, Approximation Algorithms, Simon Fraser University. Lecturer (with Cenk Sahinalp). Summer 2005, Summer 2006.
- MACM300, Introduction to Formal Languages and Automata with Applications, Simon Fraser University. Lecturer. Summer 2005.
- CS341, Automata Theory, University of Texas at Austin. Lecturer. Spring 2004.
- CS 113, Introduction to C, Cornell University. Lecturer. Fall 1999.
- CS 100B, Introduction to Computer Programming, Cornell University. Recitation instructor. Fall 1998.
- CS 213, C++ Programming, Cornell University. Lecturer (with Stephanie Weirich). Fall 1997.
- CS 482, Introduction to Analysis of Algorithms, Cornell University. Lecturer. Summer 1997.
- CS 482, Introduction to Analysis of Algorithms, Spring 1997; CS 211, Computers and Programming, Fall 1996; CS 472, Foundations of Artificial Intelligence, Fall 1996. Cornell University. Teaching Assistant.

Honors & Awards

- Outstanding Teaching Assistant Award, Computer Science Department, Cornell University, May 1997.
- Turkish Scientific and Technical Council Fellowship, merit based, May 1996.
- Bilkent University Scholarship covering all university expenses, 1992–1996.

Professional Activities

- Program committee member of the 12th International Workshop on Randomization and Computation (RANDOM 2008).
- Program committee member (Foundations track) of the 23rd International Symposium on Computer and Information Sciences (ISCIS 2008).
- Invited talk at Representations and Inference on Probability Distributions Workshop in Neural Information Processing Systems Conference (NIPS), Vancouver, Canada, December 2007.
- Invited talk at 1st Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM), Banff, Canada, June 2007.
- Visiting Faculty Member, Sabancı University, Istanbul, Turkey, March–April 2007, September–December 2009.
- Reviewed papers for Journal of Computer and System Sciences, SIAM Journal on Computing, Journal of Algorithms, Theory of Computing Systems, Information and Computation, ACM Transactions on Algorithms, SIAM Journal on Discrete Mathematics, Information Processing Letters.

Publications

Journal Publications

- **Chains-into-Bins Processes.** (with P. Berenbrink and C. Cooper), Accepted for publication in the Journal of Discrete Algorithms after minor revisions, 2011.
- **Testing Closeness of Discrete Distributions.** (with L. Fortnow, R. Rubinfeld, W.D. Smith, and P. White), Accepted for publication in the Journal of the ACM after minor revisions, 2011. Preliminary version appeared in Proceedings of 41st IEEE Symposium on Foundations of Computer Science (FOCS), pages 259–269, 2000.
- **A Sublinear-Time Approximation Scheme for Bin Packing.** (with P. Berenbrink and C. Sohler), Theoretical Computer Science 410 (47–49), pages 5082–5092, 2009.
- **The Complexity of Approximating the Entropy.** (with S. Dasgupta, R. Kumar, and R. Rubinfeld), SIAM Journal on Computing, 35 (1), pages 132–150, 2005. Preliminary version appeared in Proceedings of 34th ACM Symposium on Theory of Computing (STOC), pages 678–687, 2002.
- **Fast Approximate PCPs for Multidimensional Bin-Packing Problems.** (with R. Rubinfeld and P. White), Information and Computation, 196 (1), pages 42–56, 2005. Preliminary version appeared in Proceedings of Workshop on Randomization and Approximation Techniques in Computer Science (RANDOM), pages 245–256, 1999.

Refereed Conference Publications

- **Chains-into-Bins Processes.** (with P. Berenbrink and C. Cooper), In the Proceedings of 21st International Workshop on Combinatorial Algorithms (IWOCA), July 2010.
- **Oblivious String Embeddings and Edit Distance Approximations.** (with F. Ergun and S.C. Sahinalp), Proceedings of ACM-SIAM Symposium on Discrete Algorithms (SODA), pages 792–801, 2006.
- **Inferring Mixtures of Markov Chains.** (with S. Guha and S. Kannan), Proceedings of 17th Conference on Learning Theory (COLT), pages 186–199, 2004.
- **Sublinear Algorithms for Testing Monotone and Unimodal Distributions** (with R. Kumar and R. Rubinfeld), Proceedings of 36th ACM Symposium on Theory of Computing (STOC), pages 381–390, 2004.
- **Reconstructing Strings from Random Traces.** (with S. Kannan, S. Khanna, and A. McGregor), Proceedings of ACM-SIAM Symposium on Discrete Algorithms (SODA), pages 903–911, 2004.
- **A Sublinear Algorithm for Weakly Approximating Edit Distance.** (with F. Ergün, J. Kilian, A. Magen, S. Raskhodnikova, R. Rubinfeld, R. Sami), Proceedings of 35th ACM Symposium on Theory of Computing (STOC), pages 316–324, 2003.
- **The Complexity of Approximating the Entropy.** (with S. Dasgupta, R. Kumar, and R. Rubinfeld), Proceedings of 34th ACM Symposium on Theory of Computing (STOC), pages 678–687, 2002. Abstract in proceedings of 17th IEEE Conference on Computational Complexity, page 17, 2002.
- **Testing Random Variables for Independence and Identity.** (with E. Fischer, L. Fortnow, R. Kumar, R. Rubinfeld, and P. White), Proceedings of 42nd IEEE Symposium on Foundations of Computer Science (FOCS), pages 442–451, 2001.

- **Testing That Distributions Are Close.** (with L. Fortnow, R. Rubinfeld, W.D. Smith, and P. White), Proceedings of 41st IEEE Symposium on Foundations of Computer Science (FOCS), pages 259–269, 2000.
- **Fast Approximate PCPs for Multidimensional Bin-Packing Problems.** (with R. Rubinfeld and P. White), Proceedings of Workshop on Randomization and Approximation Techniques in Computer Science (RANDOM), pages 245–256, 1999.
- **Runtime Verification of Remotely Executed Code Using Probabilistically Checkable Proof Systems.** (with R. Rubinfeld and P. White), Proceedings of the Workshop on Runtime Result Verification, Federated Logic Conference (FLoC), 1999.

**Surveys &
Thesis**

- **Locally Consistent Parsing and Applications to Approximate String Comparisons.** (with S.C. Sahinalp), Invited talk in 9th International Conference Developments in Language Theory (DLT), pages 22–35, 2005.
- **Testing Properties of Distributions.** Ph.D. dissertation, Cornell University. August 2001.