

1. Biographical Information

Nevin Kapur; born May 9, 1974; Indian citizen.

2. Contact Information

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3. Education

Ph.D. in Mathematical Sciences¹, The Johns Hopkins University, 2003. Thesis: “Additive functionals on random search trees.” Advisor: James Allen Fill

M.S. in Electrical and Computer Engineering, North Carolina State University, 1998.

B. Tech. in Electrical Engineering, Indian Institute of Technology–Bombay, 1996.

4. Employment

Instructor in Computer Science, California Institute of Technology, 2003–.

Graduate Assistant (Research, Teaching, and Computing), Mathematical Sciences, The Johns Hopkins University, 1998–2003.

Research Assistant, Collaborative Benchmarking Laboratory, North Carolina State University, 1996–1998.

5. Professional Societies

American Mathematical Society, 2002–.

Institute for Mathematical Statistics, 2002–.

Mathematical Association of America, 2002–.

Society for Industrial and Applied Mathematics, 2000–.

6. Professional Activities

Referee. American Mathematical Monthly, Annals of Probability, IEEE Symposium on Foundations of Computer Science, Random Structures & Algorithms, Theoretical Computer Science

Reviewer. SIAM Books

7. Awards and Honors

Abel Wolman Fellowship, Whiting School of Engineering, The Johns Hopkins University, 1998–1999.

¹The department has since been renamed Applied Mathematics and Statistics.

8. Talks

Additive functionals on random trees. Stochastics Seminar, University of Utah (November 2004); Probability Seminar, UCLA (November 2005).

Solvency games: how to gamble forever. Applied Mathematics and Statistics seminar, The Johns Hopkins University. November 2004.

Limiting distributions for additive functionals on simply generated trees. Ninth Seminar on Analysis of Algorithms, San Miniato, June 2003.

Singularity analysis of Hadamard products. ALICE03—Algorithms for Listing Counting and Enumeration, Baltimore, January 2003.

Limit laws for additive functionals on Catalan trees. Mid-Atlantic Probability and Statistics Day, The George Washington University, Washington, November 2002. *Runner-up, Best student presentation.*

Singularity analysis for Hadamard products, with applications. Eighth Seminar on Analysis of Algorithms, Strobl, June 2002.

9. Publications and manuscripts

Solvency games (with Noam Berger, Leonard J. Schulman, and Vijay Vazirani).

Destruction of very simple trees (with James Allen Fill and Alois Panholzer). To appear in *Algorithmica*, special issue on Analysis of Algorithms.

A repertoire for additive functionals on uniformly distributed m -ary search trees (with James Allen Fill). Extended abstract in *2005 International Conference on the Analysis of Algorithms, Discrete Mathematics and Theoretical Computer Science Proceedings*, AD (2005) 105–114.

Properties of limiting distributions of additive functionals on simply generated trees. (with James Allen Fill and Svante Janson). In preparation.

The space requirement of m -ary search trees: distributional asymptotics for $m \geq 27$ (with James Allen Fill). Invited submission to *Proceedings of the 7th Iranian Statistical Conference*, August 2004.

Limiting distributions for additive functionals on Catalan trees (with James Allen Fill). *Theoretical Computer Science*, 326 (2004) 69–102.

Singularity analysis, Hadamard products, and tree recurrences (with James Allen Fill and Philippe Flajolet). *Journal of Computational and Applied Mathematics*, 174(2) 271–313, 2005. Last revised June 2003.

Transfer theorems and asymptotic distributional results for m -ary search trees (with James Allen Fill). *Random Structures & Algorithms*, 26(4) 359–391, 2005. Last revised January 2004.

Synthesis of Signature-Invariant Equivalence Class Circuit Mutants and Applications to Benchmarking (with Franc Brglez, Debabrata Ghosh, and Justin Harlow). In *Design Automation & Test–Europe (DATE '98)*, February 1998.

Towards a New Benchmarking Paradigm in EDA: Analysis of Equivalence Class Mutant Circuit Distributions (with Franc Brglez and Debabrata Ghosh). In *ACM International Symposium on Physical Design*, April 1997.

10. Courses taught

Introduction to Software Engineering (CS3), California Institute of Technology, Spring 2004 and Spring 2005.

Computer Algorithms (CS138a), California Institute of Technology, Winter 2004 and Winter 2005.

Discrete Mathematics (550.171), The Johns Hopkins University, Summer 2001 and Summer 2002.

11. Committees

Information Technology Committee. Whiting School of Engineering, The Johns Hopkins University, 2002–2003.

12. References

James Allen Fill, Applied Mathematics and Statistics, The Johns Hopkins University.

Philippe Flajolet, Algorithms Project, INRIA.

Edward R. Scheinerman, Applied Mathematics and Statistics, The Johns Hopkins University.

Leonard J. Schulman, Computer Science, California Institute of Technology.