Michael Mitzenmacher
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617-496-7172

Research Interests Design and Analysis of Algorithms; Networks and Data Transmission; Information Theory.

Education

UNIVERSITY OF CALIFORNIA AT BERKELEY, Berkeley, CA
Ph.D. in Computer Science awarded December, 1996.
Dissertation: **The Power of Two Choices in Randomized Load Balancing.**
Advisor: Alistair Sinclair. GPA: 4.0/4.0

CAMBRIDGE UNIVERSITY, Cambridge, England
Attended as one of ten recipients of the Churchill Fellowship.
Cambridge C.A.S. in Mathematics with highest distinction awarded June 1992.

HARVARD COLLEGE, Cambridge, MA
B.A. in Mathematics with Computer Science, summa cum laude, awarded June 1991.

Employment

HARVARD UNIVERSITY, Cambridge, MA *Spring 1999-present*
Assistant professor (from Jan. 1999 -July 2002), **Associate professor** (from July 2002-January 2005), **Professor** (from Jan. 2005-present), **Area Dean for Computer Science** (from July 2010-June 2013). Teach the undergraduate course "Introduction to algorithms and data structures" and graduate courses covering topics in randomized algorithms, algorithms for networks, compression, coding, cryptography, and information retrieval.

DIGITAL SYSTEMS RESEARCH CENTER, Palo Alto, CA *Fall 1996- Winter 1998*
Research scientist. Projects included work on information retrieval on the Web, erasure codes, error-correcting codes, on-line algorithms, and load balancing. Co-inventor for twelve submitted patents.

SANTA CLARA UNIVERSITY, Santa Clara, CA *Spring 1997*
Guest professor for the undergraduate class "Introduction to Algorithms."

Consultant: I consult on intellectual property issues as an expert witness and in other capacities. As an expert witness, I have testified in multiple trials. I have also consulted for several technology companies and research laboratories, including Adverplex (Cogolabs), Akamai, AT&T, Digital Fountain, eHarmony, Fluent Mobile (Fiksu), Google, Huawei, ITA Software, JobSync, Microsoft, Mitsubishi Research Laboratories, and Yahoo.

Funding

NSF CCF-1563710: CIF: NeTS: Medium: Collaborative Research: Unifying Data Synchronization. co-PIs: David Starobinksi, Ari Trachtenberg. Total grant: $400,000. 7/16-6/20.

NSF CCF-1535705: AitF: FULL: Collaborative Research: Better Hashing for Applications: From Nuts & Bolts to Asymptotics. co-PIs: David Andersen. Total grant: $250,000. 9/15-8/19.

NSF CCF-1320231: AF: Small: Data Synchronization : Theory, Algorithms, and Practice PI: Michael Mitzenmacher. Total grant: $399,370. 9/13-8/16.

NSF CNS-1228598: TWC: Medium: Collaborative: Privacy-Preserving Distributed Storage and Computation. PI: Michael Goodrich. co-PIs: Michael Mitzenmacher, Roberto Tamassia. Total grant: $400,000. 8/12-8/16.

NSF IIS-0964473: HCC: Medium: Collaborative Research: Data-Parallel Hash Tables: Theory, Practice and Applications. PI: Michael Mitzenmacher, co-PI: Nina Amenta. Total grant: $171,095. 8/10-7/13.

NSF CCF-0915922: AF : Small : The Theory and Practice of Hash-Based Algorithms and Data Structures. PI: Michael Mitzenmacher. Total grant: $441,956. 8/09-7/12.

NSF CNS-0721491: NeTS FIND: A Network-Wide Hashing Infrastructure for Monitoring and Measurement. PI: Michael Mitzenmacher. Total grant: $330,000. 9/07-8/10.

NSF CCF-0634923: Towards a Basic Understanding of Channels with Synchronization Errors. PI: Michael Mitzenmacher. Total grant: $200,000. 9/06-8/09.

NSF CCR-0121154: ITR/SY Algorithmic Issues in Large Scale Dynamic Networks. PI: Eli Upfal, Brown. Subcontract to Harvard. Total grant: $502,000. 9/01-8/06.

NSF CCR-0118701: Low Density Parity Check Codes for Channels with Memory. PI: Michael Mitzenmacher, co-PI: Alek Kavcic. Total grant: $510,000. 9/01-8/04.

NSF CCR-9983832: Dynamic Processes and Network Algorithms (CAREER). $200,000. 7/00-6/04.

Google University Research Program. 8/13-8/14. PIs: Eddie Kohler and Michael Mitzenmacher $56,000.

Google University Research Program. 12/11-12/12. $25,000.

Yahoo! University Research Program. 7/11-6/12. $10,000.

Google University Research Program. 12/09-12/10. $60,000.

Yahoo! University Research Program. 9/09-8/10. $10,000.

Google University Research Program. 8/08-7/09. $75,000.

Yahoo! University Research Program. 9/07-8/08. $25,000.

Yahoo! University Research Program. 9/06-8/07. $50,000.

Cisco University Research Program. 8/08-7/09. $80,000.

Cisco University Research Program. 8/07-7/08. $83,000.

Cisco University Research Program. 8/06-7/07. $80,000.

Cisco University Research Program. 8/05-7/06. $72,000.

Alfred P. Sloan Research Fellowship. $40,000. Awarded in 2000.

IBM Faculty Research Grant. $10,000 Awarded in 2005.

IBM Faculty Research Grant. $10,000 Awarded in 2003.

Mitsubishi Electronic Research Laboratory. $10,000 for undergraduate research projects. Awarded in 2002.

Honors

ACM Fellow (2014)
ACM Symposium on Parallelism in Algorithms and Architectures Best Paper Award (2014)
World Wide Web Conference Best Paper Award (2014)
Royal Academy of Engineering Distinguished Visiting Fellowship (2010)
ACM SIGCOMM Test of Time Paper Award (2009)
IEEE Information Theory Society Best Paper Award (2002)
Alfred P. Sloan Research Fellowship (2000)
Sakrison Award (for Ph.D. thesis at Berkeley) (1997)
NDSEG Graduate Fellowship (1992-95)
NSF Graduate Fellowship Winner (1991)
Churchill Fellowship (1991-92)
Hoopes Prize (for senior thesis at Harvard) (1991)
Phi Beta Kappa (1990)
Harvard Distinction in Teaching Award (1990)
Goldwater Fellowship (1989-91)

Professional Activities

Editorships:
Editorial Board, Leibniz International Proceedings in Informatics (2009-present)
Editorial Board, Communications of the ACM (2013-present)
Science Board, Santa Fe Institute (2013-present)
Guest Editor, SIAM Journal of Computing special issue for STOC 2009
SIAM Journal on Computing, Editor (2006-2010)
Internet Mathematics, Managing Editor
Guest Editor, Theory of Computing System special issue for SPAA 2002
Journal of Interconnection Networks, Editor

Organizing Committees:
SIGACT Chair (2015-2018)
EADS Summer School on Hashing: Theory and Applications (2014)
ICERM Workshop on Stochastic Graph Models (2014)
WAW 2013 Organizing Committee
SIGACT Vice-Chair (2009-2012)
General Chair, STOC (2010)
Workshop on Randomized Algorithms and Random Graphs (2010)
DARPA Information Science and Technology Study Groups (2007-2008)
SIGACT Committee for the Advancement of Theoretical Computer Science (2005-2008)
MSRI Workshop on Models of Real-World Random Networks (2005)
FOCS 2003 Local Arrangements Chair
Second Workshop on Randomized Algorithms and Random Graphs (2003)
Workshop on Algorithms and Models for the Web Graph (2002)
First Workshop on Randomized Algorithms and Random Graphs (2002)
DIMACS Workshop on Quality of Service Issues in the Internet (2001)
BU/NSF Workshop on Internet Measurement, Instrumentation, and Characterization (1999)
FOCS 1998 Local Arrangements Chair

Program Committees:
ANALCO 2018 Program Committee
SIGCOMM 2017 Program Committee
NSDI 2017 Program Committee
ACM CoNEXT 2016 Program Committee

SIGCOMM 2016 Program Committee
ALENEX 2016 Program Committee (Co-Chair)
ICALP 2016 Program Committee (Track C PC Chair)
ACM CoNEXT 2015 Program Committee
ICALP 2015 Program Committee
ITCS 2015 Program Committee
SIGCOMM 2014 Program Committee
ACM CoNEXT 2014 Program Committee
WSDM 2014 Senior Program Committee
WAW 2013 Program Committee (Co-Chair)
STOC 2013 Executive Committee
WSDM 2013 Senior Program Committee
SIGCOMM 2012 Program Committee
ISIT 2012 Program Committee
NSDI 2012 Program Committee
WAW 2011 Program Committee
ACM CoNEXT 2010 Program Committee
SIGCOMM 2010 Program Committee
NSDI 2010 Program Committee
FUN 2010 Program Committee
LATIN 2010 Program Committee
NetSciCom 2009 Program Committee
SIGCOMM 2009 Program Committee
STOC 2009 Program Committee (PC Chair)
NSDI 2009 Program Committee
ICALP 2008 Program Committee
SPAA 2008 Program Committee
WAW 2007 Program Committee
Analysis of Algorithms 2007 Program Committee
ANALCO 2007 Program Committee
ICALP 2007 Program Committee
RANDOM 2007 Program Committee
NCA 2006 Program Committee
STOC 2006 Program Committee
PODC 2005 Program Committee
ANALCO 2005 Program Committee
PODC 2004 Program Committee
SIGCOMM 2004 Program Committee
IPTPS 2004 Program Committee
Data Compression Conference 2004 Program Committee
ESA 2004 Program Committee
WAW 2003 Program Committee
FOCS 2003 Program Committee
Data Compression Conference 2003 Program Committee
ESA 2002 Program Committee
PODC 2002 Program Committee
SPAA 2002 Program Committee
STOC 2002 Program Committee
Data Compression Conference 2002 Program Committee
ALENEX 2002 Program Committee
HiPC 2001 Program Committee

ISAAC 2000 Program Committee
RANDOM 2000 Program Committee
STACS 2000 Program Committee
FOCS 99 Program Committee
RANDOM 98 Program Committee

Reviewer for several conferences, journals, and grant panels.

Books

Probability and Computing: Randomized Algorithms and Probabilistic Analysis, by Michael Mitzenmacher and Eli Upfal. Published by Cambridge University Press in 2005. (2nd edition available in 2017.) This is a textbook meant for an advanced undergraduate or beginning graduate class. The textbook has been used in courses at Brown, Harvard, U. C. Berkeley, Univ. of Victoria, Tufts, Univ. of Mass. at Amherst, Purdue, U. Penn., and several other universities.

Conference and Journal Publications

"Adaptive Cuckoo Filters," with S. Pontarelli and P. Reviriego. To appear in ALENEX 2018.

"An Empirical Comparison of the Maximal and Total Information Coefficients to Leading Measures of Dependendence," with D. Reshef, Y. Reshef, and P. Sabeti. To appear in *Annals of Applied Statistics.*

"Simple Multi-Party Set Reconciliation," with R. Pagh. To appear in *Distributed Computing.*

"Technical Perspective: Building a Better Hash Function." *Communications of the ACM*, 60(7), p. 93, 2017.

"Compresso: Efficient Compression of Segmentation Data For Connectomics," with D. Haehn, F. Lekschas, B. Matejek, and H. Pfister. In *Proceedings of the 20th International Conference on Medical Image Computing and Computer Assisted Intervention*, pp. 781-788, 2017.

"Auditable Data Structures," with M. Goodrich, E. Kornaropoulos, and R. Tamassia. In *Proceedings of the European Symposium on Security and Privacy*, pp. 285-300, 2017.

"2-3 Cuckoo Filters for Faster Triangle Listing and Set Intersection," with D. Eppstein, M. Goodrich, and M. Torres. In *Proceedings of the 36th Symposium on Principles of Database Systems*, pp. 247-260, 2017.

"Scalable motif-aware graph clustering," with C. Tsourakakis and J. Pachocki. In *Proceedings of the 26th International Conference on the World Wide Web*, pp. 1451-1460, 2017.

"Measuring Dependence Powerfully and Equitably," with Y. Reshef, D. Reshef, H. Finucane, and P. Sabeti. *Journal of Machine Learning Research*, 17(212):163, 2016.

"Quantized Random Projections and Non-Linear Estimation of Cosine Similarity," with P. Li and M. Slawski. To appear in *Advances In Neural Information Processing Systems 29*, pp.2748-2756, 2016.

"Analyzing Distributed Join-Idle-Queue: A Fluid Limit Approach." In *Proceedings of the 54th Annual Allerton Conference on Communication, Control, and Computing*, pp. 312-318, 2016.

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Litigation and bankruptcy checks for companies and debtors.

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Sync your system to PACER to automate legal marketing.