

CURRICULUM VITAE

Bernard Chazelle

Eugene Higgins Professor of Computer Science

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Professional Experience

Princeton University

Professor, Department of Computer Science, 1989–

Associate Professor, Department of Computer Science, 1986–89

Institute for Advanced Study, Princeton

Member, School of Natural Sciences, 2013–2015

Collège de France

Professor, Computer Science Chair, 2012–2013

NEC Research Institute

Fellow, 1998–2003 (chairman of the board, 2000–03)

Other positions

ENS Ulm, Ecole Polytechnique, University of Paris, Brown University, CMU,

DEC SRC, Xerox PARC, INRIA

Education

Ph.D., Computer Science, Yale University, 1980

Diploma (Applied Math), Ecole des Mines de Paris, 1977

Honors

Fellow, Academy of the International Artificial Intelligence Industry Alliance (2025)

Fellow, Asia-Pacific Artificial Intelligence Association (2024)

Test-of-Time Award, European Symposium on Algorithms (2018)

Best SICON Paper Prize, SIAM Control and Systems Theory (2013)

SIAM Outstanding Paper Prize (2012)

Best Paper Award, ACM-SIAM Symposium on Discrete Algorithms (2009)

Fellow, American Academy of Arts and Sciences (2004)

Fellow, World Innovation Foundation (2004)

Member, European Academy of Sciences (2002)

Fellow, Association for Computing Machinery (1995)

Guggenheim Fellow (1994)

Service Award, Association for Computing Machinery (1988)

Fulbright Fellowship (1977)

Editorial Boards

Journal of the ACM (1996–2010); SIAM Journal on Computing (1985–2010); Algorithmica (1984–2009); Discrete and Computational Geometry; International Journal of Computational

Geometry & Applications; Computational Geometry: Theory and Applications (1990–2008); ACM Transactions on Algorithms (2004–2008); AMS Contemporary Mathematics Series; Foundations and Trends in Theoretical Computer Science; Geometry & Computing (Springer); Chapman & Hall/CRC (Handbook & Series); Journal of Algorithms (1989–2003); ENTCS (1995–2000); Journal of Computational Geometry; ACM XRDS.

Program Committees

2nd AFCET-STACS (1984); 17th ACM STOC (1985); 2nd ACM SoCG (1986); ICPAM (1986); SIAM Annu. Meeting (CGS) (1987); 4th ACM SoCG (chair, 1988); 3rd ARIDAM (chair, 1988); 22nd ACM STOC (1990); 25th ACM STOC (1993); 9th ACM SoCG (1993); 8th ACM-SIAM SODA (1996); 2nd ACM WACG (1997); 13th ACM SoCG (1997); 2nd RANDOM (1998); 2nd ALENEX (2000); 7th COCOON (2001); 12th ACM-SIAM SODA (2001); 2nd FUN (2001); 42nd FOCS (2001); LATIN (2002); 43rd FOCS (PC Chair, 2002); 9th COCOON (2003); 7th RANDOM (2003); 29th MFCS (2004); 20th ACM SoCG (2004); 16th ACM-SIAM SODA (2005); 12th COCOON (2006); FAW (2007); 40th ACM STOC (2008); 2nd ICS (chair, 2011); 39th ICALP (2012); 45th ACM STOC (2013); 12th ECAL (2013); 7th ITCS (2015); 9th ITCS (2017); 10th ITCS (2018).

Service (selected)

Chair, DIMACS Special Year (1989–90); Member, The Geometry Center, NSF S&T Center (1989–94); Co-Director, DIMACS (1996–1998); Chair, Computational Geometry Impact Task Force (1996); Member, Steering Committee, ACM Computational Geometry (1997); President, Program Evaluation Committee, INRIA (1997); Founder, PACT (1998); Member, ACIB Scientific Council (1999); President, Scientific Council, DI, Ecole normale supérieure, Paris (1999–2007); Member, Research Council, Ecole Polytechnique, France (2000–01); Advisor, Japan Society for the Promotion of Science (2004); Member, Scientific Council, Institut Henri-Poincaré, Paris (2006–14); Member, Board of Governors, IMA (2006–11); Member, Scientific Committee, TGGT, Paris (2008); Chair Professor, ITCS, Tsinghua University (2008); President, Steering Committee, ITCS (2010–2012); Director, Center for Computational Intractability (2010–12); Member, Scientific Advisory Board, Project SAGE (2013–).

Keynote Addresses (since 1990)

ARIDAM V (1990); SIGAL Int. Symp. Alg. (Plenary Address, 1990); The Johns Hopkins University (Distinguished Lecture Series, 1990); ICALP (Plenary Address, 1991); 6th SIAM Conf. Disc. Math. (1992); 4th Canad. Conf. Comp. Geom. (Plenary Address, 1992); 16th IFIP Conf. Sys. Model. Optim. (1993); STOC (Plenary Address, 1994); Graduate Center, NYC (Distinguished Lecture Series, 1995); CG Conference, Johns Hopkins University (1996); Univ. British Columbia (Distinguished Lecture Series, 1996); WADS, Halifax (Plenary Address, 1997); ISAAC, Taejon, Korea (Plenary Address, 1998); EuroCG, Antibes, France (Plenary Address, 1999); ETH DCG Conf., Ascona (1999); Ron Graham's Celebration Day, AT&T Labs (1999); INRIA (Distinguished Lecture Series, 1999); FSTTCS New Delhi, India (Plenary Address, 2000); Duke Univ. (Distinguished Lecture Series, 2000); COCOON, Guilin, China (Plenary Address, 2001); Bourbaki Seminar, Paris (2001); New York Academy of Sciences (2002); Univ. Victoria, BC (Distinguished Lecture Series, 2002); Univ. Madison-Wisconsin (Distinguished Lecture Series, 2003); ESA, Budapest, Hungary (Plenary Address, 2003); SODA, New Orleans (Plenary Address, 2004); Univ. Illinois at Urbana-Champaign (Distinguished Lecture Series, 2004); Univ. Toronto (Distinguished Lecture Series, 2005); FOCS, Pittsburgh (Invited Tutorial, 2005); AAAS (Annual Meeting 2006); UT Dallas (Distinguished Lecture Series, 2006); EuroCG, Delphi, Greece (Plenary Address, 2006); DIKEMES,

Athens, Greece (2006); Simon Fraser Univ. (Distinguished Lecture Series, 2006); Morgenstern Lecture Series (2006); ETH Informatik's 25th Anniversary, Zurich (Plenary Address, 2006); North Carolina State Univ. (Interdisc. Distinguished Lecture Series, 2006); Univ. Michigan (Distinguished Lecture Series, 2007); EuroCG, Graz, Austria (Plenary Address, 2007); 34th ICALP, Wroclaw, Poland (Plenary Address, 2007); Norway Research Council Conference (Plenary Address, 2007); Stony Brook Univ. (Distinguished Lecture Series, 2007); Univ. Washington (Distinguished Lecture Series, 2008); Birzeit University (Distinguished Lecture, 2008); Univ. Buffalo SUNY (Distinguished Lecture Series, 2008); 5th TAMC 2008, Xi'an, China (Plenary Address, 2008); 1st China Symp. TCS, Tsinghua Univ., China (Plenary Address, 2008); Bryn Mawr College (Distinguished Lecture Series, 2009); Univs. Auckland; Canterbury; Otago; Wellington, New Zealand (Distinguished Lectures, 2009); CMU, Gaschnig-Oakley Memorial Lecture (Distinguished Lecture Series, 2009); Drexel Univ. (Distinguished Lecture, 2009); MIT, Dertouzos Lecture (Distinguished Lecture Series, 2010); Univ. Pittsburgh, Bayer Lecture (Distinguished Lecture Series, 2011); Dartmouth Univ., CSRS (Keynote Address 2011); NIPS (Plenary Address 2011); Collège de France (Inaugural Address 2012); Morgenstern Lecture Series, INRIA (2012); Israel Pollak Lectures, Technion (2013); Avner Magen Memorial Lecture, University of Toronto (2013); Institute Colloquium, IST Austria (2013); HaPoc 2013 (Plenary Address), Ecole Normale Supérieure Ulm; Cité des Sciences, Tunis (Collège de France Lecture Series, 2014); Bibliothèque Nationale de France (Distinguished Lecture Series, 2014); Iowa State University (Distinguished Lecture Series, 2014); CIAC 2015 (Plenary Address), 9th Int. Conf. Algorithms and Complexity, Paris; Plenary Address, Forums régionaux du Savoir, Rouen, France (2015); Presidential Lecture, Association of Bone and Joint Surgeon, Eugene, Oregon (2015); WADS 2015 (Plenary lecture), Victoria, Canada; NecSys 2015 (Plenary lecture), Philadelphia; University of Rome, La Sapienza (Distinguished Lecture, 2016); CiE 2016 (Keynote Address), Paris; GECCO 2016 (Keynote Address), Denver; Univ. Michigan (Plenary Lecture, MCAIM Inaugural, 2016); Georgetown University (Distinguished Lecture, 2018); FCT 2019 (Keynote Address), Copenhagen, Denmark; ESA 2019 (Test-of-Time Award Lecture), Munich, Germany; Yale University (Distinguished Lecture, 2020); Paul Erdős Memorial Lecture, 34th CCCG 2022, Toronto, Canada.

Selected Publications

- The Discrepancy Method: Randomness and Complexity, *Cambridge University Press*, 2000; paperback version, 2001.
- Fractional Cascading: I. A Data Structuring Technique, II. Applications, (with L.J. Guibas), *Algorithmica* 1 (1986), 133–191.
- Filtering Search: A New Approach to Query-Answering, *SIAM J. Comput.* 15 (1986), 703–724.
- Lower Bounds on the Complexity of Polytope Range Searching, *J. AMS* 2 (1989), 637–666.
- A Deterministic View of Random Sampling and Its Use in Geometry, (with J. Friedman), *Combinatorica* 10 (1990), 229–249.
- Lower Bounds for Orthogonal Range Searching: I. The Reporting Case, II. The Arithmetic Model, *J. ACM* 37 (1990), 200–212, 439–463.
- Triangulating a Simple Polygon in Linear Time, *Disc. Comput. Geom.* 6 (1991), 485–524.
- An Optimal Algorithm for Intersecting Line Segments in the Plane, (with H. Edelsbrunner), *J. ACM* 39 (1992), 1–54.

- An Optimal Algorithm for Intersecting Three-Dimensional Convex Polyhedra, *SIAM J. Computing* 21 (1992), 671–696.
- Cutting Hyperplanes for Divide-and-Conquer, *Disc. Comput. Geom.* 9 (1993), 145–158.
- An Optimal Convex Hull Algorithm in Any Fixed Dimension, *Disc. Comput. Geom.* 10 (1993), 377–409.
- On Linear-Time Deterministic Algorithms for Optimization Problems in Fixed Dimension, (with J. Matousek), *J. Algorithms* 21 (1996), 579–597.
- Lines in Space: Combinatorics and Algorithms, (with H. Edelsbrunner, L.J. Guibas, M. Sharir, J. Stolfi), *Algorithmica* 15 (1996), 428–447.
- Lower Bounds for Off-Line Range Searching, *Disc. Comput. Geom.* 17 (1997), 53–65.
- A Spectral Approach to Lower Bounds with Applications to Geometric Searching, *SIAM J. Comput.* 27 (1998), 545–556.
- A Minimum Spanning Tree Algorithm with Inverse-Ackermann Type Complexity, *J. ACM* 47 (2000), 1028–1047.
- Lower Bounds for Linear Degeneracy Testing, (with N. Ailon), *J. ACM* 52 (2005), 157–171.
- The Convergence of Bird Flocking, *J. ACM* 61 (2014), 21:1–35 (SODA’09 Best Paper Award).
- The Fast Johnson-Lindenstrauss Transform and Approximate Nearest Neighbors, (with N. Ailon), *SIAM J. Comput.*, 39 (2009), 302–322 (2012 SIAM Outstanding Paper Prize).
- Self-Improving Algorithms, (with N. Ailon, K. Clarkson, D. Liu, W. Mulzer, C. Seshadhri), *SIAM J. Comput.*, 40 (2011), 350–375.
- The Total s -Energy of a Multiagent System, *SIAM J. Control and Optim.*, 49 (2011), 1680–1706 (2013 SIAG/CST Best SICON Paper Prize).
- Diffusive Influence Systems, *SIAM J. Comput.*, 44 (2015), 1403–1442.