Adam Heath Cannon

Department of Computer Science
Columbia University
500 West 120th Street Room 450
New York, NY 10027

Tel. (212) 853-8431
Email: cannon@cs.columbia.edu
http://www.cs.columbia.edu/~cannon

Research Interests

Computer science education; machine learning; statistical pattern recognition; computational statistics; randomized algorithms; approximation algorithms.

Education

Johns Hopkins University (Baltimore, Maryland)
- Ph.D. in Applied Mathematics
  Thesis title: *Approximate Distance Methods in Classification.*
  Thesis Advisors: Lenore J. Cowen and Carey Priebe
- M.A. in Applied Mathematics

University of California, Los Angeles
- M.S. in Aerospace Engineering
- B.S. in Aerospace Engineering

Professional Experience

- Teaching Professor of Computer Science, Department of Computer Science, Columbia University (July 2025-present)

- Senior Lecturer in Discipline, Department of Computer Science, Columbia University (July, 2013- 2025)

- Lecturer in Discipline, Department of Computer Science, Columbia University (July, 2008-June, 2013)

- Assistant Professor, Department of Computer Science, Columbia University (July, 2000-June, 2008)

- Visiting Scientist, Modeling, Algorithmics and Informatics Group (CCS-3), Los Alamos National Laboratory (June, 2000- September, 2004)

Education Experience

- Associate Chair for Undergraduate Education 2008-2018, *Department of Computer Science, Columbia University,* led the development of the last two iterations of undergraduate Computer Science BA and BS curricula, Co-developer of undergraduate Data Science and Information Science degree programs.

- Designed and Instructed: *AI in Context (AI literacy course), Introduction to Computer Science (for majors), Computing in Context (for non-majors), Introduction to Computing for Engineers and Applied Scientists, Introduction to Information Science.*

- Instructed: *Machine Learning, Introduction to Computers (for non-majors), Analysis of Algorithms, Linear Algebra for Computer Scientists (Scientific Computation II), Discrete Mathematics*

- Teaching Fellow, *Department of Mathematical Sciences, Johns Hopkins University* (fall 1999), Instructor for two undergraduate level courses: *Discrete Mathematics* (approximate enrollment: 120) and *Linear Algebra and Differential Equations* (approximate enrollment: 50).

- Instructor, *Department of Mathematical Sciences, Johns Hopkins University* (Summer 1999), undergraduate level class in *Discrete Mathematics*

- Teaching Assistant, *Department of Mathematical Sciences, Johns Hopkins University,* Courses: Linear Algebra and Differential Equations, Applied Mathematics I, Combinatorics (graduate level), Probability Theory (graduate level), Statistical Methods in Genetics (graduate level).

Teaching Awards

- Winner of the *2016 Presidential Award for Outstanding Teaching*, Columbia University

- Winner of the *2016 Great Teacher Award*, Society of Columbia Graduates, Columbia University.

- Winner of the *2009 Columbia University Department of Computer Science Faculty Teaching Award*

- Winner of the *2002 Columbia SEAS Alumni Association Distinguished Faculty Teaching Award*.

- *Winner of the 2000 Johns Hopkins Department of Mathematical Sciences Student Teaching Award*

Publications

- Vishal Misra, Christopher Chen, Adam Cannon, "Teaching with the Machine: Designing AI-Augmented Novices to Foster Critical Thinking and Computational Thinking in STEM Education", Chapter in *Degrees of Change* by Juan M. Lavista Ferres, Wiley 2026.

- Crystal Furman, Adam Cannon, Elizabeth Johnson, Paul Tymann, "CS Principles Curriculum Framework Updates for 2020" (Panel), *Proceedings of the 51st ACM Technical Symposium on Computer Science Education*, 2020.

- C. Murphy, R. Powell, K. Parton, A. Cannon, "Lessons Learned from a PLTL-CS Program", *Proceedings of the 42nd ACM SIGCSE Technical Symposium on Computer Science Education*, 2011.

- C. Murphy, E. Kim, G. Kaiser, A. Cannon, "BackStop: A tool for Debugging Runtime Errors", *Proceedings of the 29th ACM SIGCSE Technical Symposium on Computer Science Education*, 2008.

- A.H. Cannon, D.R. Hush, "Multiple Instance Learning using Simple Classifiers", *Proceedings of the International Conference on Machine Learning and Applications*, 2004.

- A.H. Cannon, L. Cowen, "Approximation algorithms for the class cover problem ", *Annals of Mathematics and Artificial Intelligence*; 40:3(March): 215-223, 2004.

- A.H. Cannon, J.W. Howse, D.R. Hush, J.C. Scovel, "Learning with the Neyman-Pearson and min-max criteria", Los Alamos National Laboratory Technical Report No. LAUR-02-2951, 2002.

- A.H. Cannon, J. W. Howse, D.R. Hush, J.C. Scovel, "Simple Classifiers", Los Alamos National Laboratory Technical Report No LAUR-03-0193, 2003.

- A.H. Cannon, J.M. Ettinger, D.R. Hush, J.C. Scovel, "Machine learning with data dependent hypothesis classes", *Journal of Machine Learning Research*; 2(Feb): 335-358, 2002.

- A.H. Cannon, L.F. James, C.E. Priebe, "Approximating the posterior via the nearest neighbor regression", Technical Report No. 612, Department of Mathematical Sciences, Johns Hopkins University, Baltimore, MD 21218.

- A.H. Cannon, L. Cowen, and C. E. Priebe, "Approximate distance classification", *Computing Science and Statistics,* 30: 544-549, 1998.

- A.H. Cannon, "Approximate distance methods in classification", *Ph.D. Thesis*, Department of Mathematical Sciences, Johns Hopkins University, May 2000.

Other Awards

- *Microsoft AI Economy Institute Senior Fellow*
  2025 (with Vishal Misra) "The Evolution of CS Education: Integrating AI as a Foundational Element"

- *Columbia Collaboratory Fellow*
  2024-2025, (with Jan Janak)
  "COMS W3132: Intermediate Programming in Python"

- *Co-Investigator Northeastern University Center for Inclusive Computing, 2020-2021,* (PIs Julia Hirschberg, Columbia CS and Rebecca Wright, Barnard CS)
  "Advancing Women in Computing at Columbia and Barnard"

- *Columbia Collaboratory Fellow*
  2016-2017, (joint with Columbia School of International Public Affairs)
  "Computational literacy for Public Policy"

- *Provost's Hybrid Learning Course Redesign Award,*
  2014
  "Computing in Context, A Computing Course for the Liberal Arts"

- *Google CS4HS*
  2011
  Funded a summer workshop providing professional development for high school teachers. The workshop was designed to give high school math and science teachers tools to inject computer science concepts into existing high school math and science courses.

- *NCWIT Academic Alliance Seed Fund*
  2008, With Chris Murphy and Kristen Parton
  Seed funding for the Emerging Scholars Program at Columbia Computer Science. This program is a peer-led team learning style seminar designed to attract and retain women and other underrepresented minorities to computer science. This program continues to thrive today.

Columbia Service

- University Senator, *Columbia University Senate, Education Committee, Information and Communications Technology Committee, Rules of University Conduct Committee, Faculty Affairs and Academic Freedom,* 2022-present

- Member, *AI and Society Faculty Working Group (SEAS + A&S),* 2023-2024

- Faculty Lead, *Department of Computer Science Emerging Scholars Program (ESP)*, 2008-2025
- CS Representative, *SEAS Committee on Instruction*, 2006-2018
- SEAS Representative, *Arts and Sciences Educational Policy and Planning Committee* 2012-2015
- Lead, *Department of Computer Science Undergraduate Curriculum Working Group,* 2022-2023
- Member, *Department of Computer Science Academic Committee,* 2000-present (Chair, 2008-2018)
- Member, *Department of Computer Science Lecturer Recruiting Committee,* 2014-present, (Chair 2014-2023)
- Summer Course Coordinator, *Department of Computer Science,* 2015-present

External Service

- Chair, *Advanced Placement Computer Science Principles Development Committee*, 2022-2023
- Co-Chair, *Advanced Placement Computer Science Principles Development Committee*, 2020-2022
- Member, *Advanced Placement Computer Science Principles Development Committee*, 2017-2020
- *National Science Foundation Panel Member,* Directorate for Education and Human Resources, 2014, 2017, 2018, 2020, 2022, 2023, 2024, 2025, 2026
- Referee *SIGCSE TS, Journal of Complexity, AAAI, Annals of AI*