Brian Hayes
Chapel Hill, NC 27514

CURRICULUM VITAE

Personal Born December 10, 1949, Somers Point, New Jersey. Citizenship: U.S.

Education Public schools of Upper Darby, Pennsylvania; no university education.

Employment and Professional Activities

Ongoing: Independent writer, editor, illustrator, programmer, photographer and lecturer. Work published in *Scientific American*, *The Sciences*, *Communications of the ACM*, *Muse*, *Wired*, *Natural History, Pixel, Notices of the American Mathematical Society, Discover*, *Computer Language*, *Byte, The New York Times Book Review, Saturday Review, The American Scholar, The New Republic, Time-Life Books*, *International Journal of Theoretical Physics*, *Ecotone*, *Economia Politica*, and elsewhere.

Ongoing: Author, illustrator, programmer and designer of the bit-player.org website ("An amateur's outlook on computing and mathematics").

2017 Author of *Foolproof, and Other Mathematical Meditations* (MIT Press)

2008 Author of *Group Theory in the Bedroom, and Other Mathematical Diversions* (Hill and Wang).

2005, 2014 Author of *Infrastructure: A Field Guide to the Industrial Landscape* (W. W. Norton).

1990–2015 *American Scientist* magazine (publication of Sigma Xi, The Scientific Research Society). 1990–92: Editor in Chief; relaunched the magazine with a new editorial staff. 1992–93: Editor-at-Large. 1993–2015: Senior Writer and columnist; author of the "Computing Science" column.

1990–1993 Columnist and Contributing Editor, *The Sciences* (publication of the New York Academy of Sciences).

1989–1993 Member of the board of editors, *Pixel: The Magazine of Scientific Visualization*.

1988–1989 Editor, *Made in America: Regaining the Productive Edge*, by Michael L. Dertouzos, Richard K. Lester and Robert M. Solow. (Report of the MIT Commission on Industrial Productivity, MIT Press.)

1973–1984 *Scientific American* magazine. 1973–79: Member of the board of editors, responsible for acquiring and editing features articles in physics, mathematics and molecular biology. 1980–84: Associate Editor, supervising editorial staff. 1983–84: inaugurated a monthly column, "Computer Recreations." 1984: organized and edited a single-topic issue on computer software.

1970–1973 *The Baltimore Sun*. Copy editor, book-review editor, and columnist for the Sunday newspaper and magazine.

Fellowships, Grants, and Visiting Appointments

2018 Journalist in Residence, Simons Institute for the Theory of Computing, University of California, Berkeley.

2016–2019 Y Combinator Research Fellow. Grant in support of ongoing writing projects in science, mathematics, technology, and computation.

2010–2016 Harvard University, School of Engineering and Applied Sciences: Research Associate in Computer Science (unpaid courtesy appointment).

2002–2003 Visiting Scientist, International Centre for Theoretical Physics, Trieste, Italy.

1999 Journalist in Residence, Mathematical Sciences Research Institute, Berkeley, California.

1993–1998 Grantee of the Alfred P. Sloan Foundation, $158,200 to support work on *Infrastructure: A Field Guide to the Industrial Landscape*.

Invited Presentations and Seminars

2018 Seminar: Writing Prose, Writing Code: What Do They Have in Common? (Joint with Rosalind Reid.) Simons Institute for the Theory of Computing, University of California, Berkeley.

2018 Colloquium talk: Words, Pictures, Programs: Communicating Computational Science, Simons Institute for the Theory of

Computing, University of California, Berkeley.

2017 Invited talk: Playing in Traffic: The Dynamics of Braess's Paradox. Santa Fe Institute, Santa Fe, New Mexico.

2017 Invited talk: Playing in Traffic, Jamming in JavaScript. James Madison University, Harrisonburg, Virginia.

2017 Co-organizer of "Data, Dollars, and Algorithms: The Computational Economy," a symposium sponsored by the Institute for Applied Computational Science, Harvard University.

2015 Tutorial on Python and JavaScript for science writers. New England Science Writers, MIT Media Lab.

2015 Colloquium talk: "Orderly Randomness: Quasirandom Numbers and Quasi–Monte Carlo," Harvard University.

2013 Invited talks, "First Links in the Markov Chain" and "An Exactly Solvable Model of Racial Segregation," Symposium on Deep Computation in Statistical Physics, Santa Fe Institute.

2013 Computational Science colloquium, "First Links in the Markov Chain," Symposium on 100 Years of Markov Chains, Harvard University.

2012 Computational Science colloquium, "Computation and the Human Condition," Harvard University.

2011 Invited address, "Gauss vs. the Virile Brute," 38th annual Maryland Mathematics Symposium, Frostburg State University, Frostburg, Maryland.

2010 Invited address, "Economics, Control Theory and the Phillips Machine," Symposium on the 60th Anniversary of the Phillips National Income Electro-Hydraulic Analogue Machine, University of Trento, Italy.

2009 Keynote address, "The Industrial Landscape," annual meeting of the Society for the History of Technology, Pittsburgh.

2008 Mathematics colloquium, "The Full Monty Hall," St. Olaf College, Northfield, Minnesota.

2008 Colloquium, "Computing in Alfonso's Universe," Harvard University Initiative in Innovative Computing.

2006 Mathematics colloquium, "Gauss's Day of Reckoning," Towson University, Towson, Maryland.

2003 Condensed matter colloquium, "An Optimization Problem from the Paleozoic," International Centre for Theoretical Physics,

Trieste, Italy.

2002 Lecture on randomness and simulation, physics diploma class, International Centre for Theoretical Physics, Trieste, Italy.

2002 Invited address, “On the Teeth of Wheels,” MD-DC-VA section of the Mathematical Association of America, St. Mary’s College, St. Mary’s City, Maryland.

2001 Invited talk, “Images of Images,” Workshop on Expanding Perception/Pensare lo Spazio, Institute for Scientific Interchange, Torino, Italy.

2001 Keynote address, “Debugging the Universe,” workshop on Digital Perspectives, National Science Foundation, Arlington, Virginia.

2000 Mathematics colloquium, “Mathematics as a Spectator Sport,” University of Maryland, College Park, Maryland.

2000 Invited address, “War and the Weather: Notes on the Life and Mathematics of Lewis Fry Richardson,” MD-DC-VA section of the Mathematical Association of America, American University, Washington, D.C.

2000 Condensed matter colloquium, “Modelling Nature Naturally,” International Centre for Theoretical Physics, Trieste, Italy.

1999 Computer science colloquium, “How to Avoid Yourself,” Sonoma State University, Rohnert Park, California.

1999 Postdoc colloquium, “Talking About Talking About Mathematics,” Mathematical Sciences Research Institute, Berkeley.

1984 Keynote address, “A World in a Grain of Sand,” Conference on Experiences in Applying Parallel Processors to Scientific Computation, Gleneden Beach, Oregon.

Publications See http://bit-player.org/publications-by-brian-hayes.

Memberships Member of the Association for Computing Machinery, American Mathematical Society, New England Science Writers, Science Communicators of North Carolina, National Association of Science Writers. Elected a Fellow of the American Association for the Advancement of Science, 1992. Elected honorary life member of Sigma Xi, the Scientific Research Society, 1999.

Awards

2006 Sally Hacker Prize of the Society for the History of Technology, for *Infrastructure: A Field Guide to the Industrial Landscape*..

1999 American Society of Magazine Editors, National Magazine Award, best essay category, for "Clock of Ages," published in *The Sciences*.

Essays anthologized in *The Norton Reader: An Anthology of Expository Prose* (ninth edition, W. W. Norton, 1996); *Scholarly Publishing: The Electronic Frontier* (MIT Press, 1996); *Literacy, Technology, and Society: Confronting the Issues* (Prentice-Hall, 1997); *Here and Now: Current Readings for Writers* (McGraw-Hill, 1998); *The Uses of Language* (Oxford University Press, 1999); *The Best American Magazine Writing 2000* (American Society of Magazine Editors, 2000); *The Best American Science and Nature Writing 2000* (Houghton Mifflin, 2000); *The Best Science Writing on Blogs 2007* (Coturnix, 2008); *Beautiful Code* (O'Reilly, 2008); *The Best Writing on Mathematics 2011* (Princeton University Press, 2010); *The Best Writing on Mathematics 2012* (Princeton University Press, 2013); *The History of Physics in Cuba* (Springer, 2014); *The Best Writing on Mathematics 2014* (Princeton University Press, 2014); *The Best Writing on Mathematics 2016* (Princeton University Press, 2016).