Allen B. Downey

Education:

Ph.D. Computer Science, University of California at Berkeley, 1997.

M.S. Civil Engineering, Massachusetts Institute of Technology, 1990.

B.S. Civil Engineering, Massachusetts Institute of Technology, 1989.

Employment:

Olin College of Engineering, Professor of Computer Science, August 2003 to present.

Harvard University, Visiting Professor of Computer Science, September 2019 to present.

Google Inc., Visiting Scientist, January 2009 to December 2010.

Boston University, Research Fellow, July 2002 to July 2003.

Wellesley College, Assistant Professor of Computer Science, July 2000 to June 2002.

Colby College, Assistant Professor of Computer Science, July 1997 to June 2000.

San Diego Supercomputer Center, Research Fellow, July 1995 to June 1997.

Awards:

Undergraduate Computational Engineering and Science Award, Krell Institute, U.S. Department of Energy, 2012.

Patents:

Estimating round trip time of a network path, US 8385225 B1, February 2013.

Selected Publications:

Additional publications available from `www.allendowney.com`

Books:

Modeling and Simulation in MATLAB, No Starch Press, expected 2020.

Think Java, 2nd Edition, with Chris Mayfield, O'Reilly Media, December 2019.

Think Julia, with Ben Lauwens, O'Reilly Media, April 2019.
Chinese, GoTop Information Inc, 2019

Think Complexity, 2nd edition, O'Reilly Media, August 2018.
Chinese, GoTop Information, 2018. Chinese, China Machine Press, 2019. Russian, DMK, 2019.

Modeling and Simulation in Python, Green Tea Press, August 2017.

Think Data Structures, O'Reilly Media, July 2017.
Chinese, China Electric Power Press, 2018. Chinese, GoTop Information, 2018. Polish, Helion, 2018. Korean, Hanbit Media, 2018. Russian, Progress Kniga, 2018. Italian, Egea, 2018.

Think Perl 6, with Laurent Rosenfeld, O'Reilly Media, May 2017.
Chinese, China Electric Power Press, 2019.

Think DSP, O'Reilly Media, August 2016.
Chinese, Posts & Telecom Press, 2017. Russian, DMK, 2017

Think Java, with Chris Mayfield, O'Reilly Media, May 2016.
Chinese, Posts & Telecom Press, 2017. Polish, Helion, 2017.

Think Python, 2nd Edition, O'Reilly Media, December 2015.
Portuguese, Novatec, 2016. Chinese, GOTOP Information, 2016. Chinese, Posts & Telecom Press, 2016. Korean, Gilbut Publishing, 2017. Polish, Helion, 2017. Italian, Egea, 2018.

Think Stats, 2nd Edition, O'Reilly Media, September 2014.
Chinese, Posts & Telecom Press, 2014. Japanese, O'Reilly Japan, 2014. German, O'Reilly Media, 2014.

Think Bayes: Bayesian Statistics in Python, O'Reilly Media, September 2013.
Korean, Hanbit Media, 2013. Japanese, O'Reilly Media, 2014. Chinese, Posts & Telecom Press, 2015. Russian, DMK, expected 2019.

Think OS, Green Tea Press, 2013.

Think Python: How to Think Like a Computer Scientist, O'Reilly Media, August 2012. Chinese, Posts & Telecom Press, 2013. German, O'Reilly Media, 2013. German 2nd edition, O'Reilly Media, 2014. Persian, Kian Publication, 2014. Croatian, Dobar Plan, 2014.

Think Complexity: Exploring Complexity Science with Python. O'Reilly Media, March 2012. Chinese, China Machine Press, 2013. Korean, HongReung Science Publishing Company, 2016.

Think Stats: Probability and Statistics for Programmers, O'Reilly Media, June 2011. Japanese, O'Reilly Japan, 2012. German, O'Reilly Verlag, 2012. Korean, Hanbit Media, 2013. Chinese, Posts & Telecom Press, 2013.

Python for Software Design, Cambridge University Press, March 2009.

How to think like a computer scientist: C++ Version, Green Tea Press, March 2009. Chinese, Posts & Telecom Press, 2013.

Learning Perl the Hard Way, Green Tea Press, March 2009.

The Little Book of Semaphores, Green Tea Press, March 2009.

Physical Modeling in MATLAB, Green Tea Press, January 2008.

Peer-reviewed journals:

"TCP Self-Clocking and Bandwidth Sharing", *Computer Networks*, 51(13), pages 3844-3863, September 2007.

"Lognormal and Pareto Distributions in the Internet", *Computer Communications*, 28(7), pages 790-801, May 2005.

"The elusive goal of workload modeling", with Dror Feitelson, *ACM Sigmetrics Performance Evaluation Review*, special issue on Scheduling in Multiprogrammed Parallel Systems, edited by Kenneth Sevcik, 26(4), pages 14-29, March 1999.

"A parallel workload model and its implications for processor allocation", *Cluster Computing*, 1(1), pages 133–145, 1998.

"Exploiting process lifetime distributions for dynamic load balancing", with M. Harchol-Balter, *IEEE Transactions on Computer Systems*, 15(3), pages 253–285, August 1997.

Peer-reviewed conferences:

"Will Millennials Ever Get Married?", 14th Python in Science Conference (SciPy 2015),
July 2015.

"A semi-automatic approach for project assignment in a capstone course", with Mark Chang,
ASEE Annual Conference, June 2008.

"Designing a small-footprint curriculum in computer science", with Lynn Andrea Stein,
Frontiers in Education (FIE) Conference, October 2006.

"An empirical model of TCP performance", IEEE MASCOTS, pages 45–54,
September 2005.

"Evidence for long-tailed distributions in the Internet", ACM SIGCOMM Internet Measure-
ment Workshop, pages 229–241, November 2001.

"The structural cause of file size distributions", IEEE MASCOTS, pages 361–370, August
2001.

"Using `pathchar` to estimate Internet link characteristics", ACM SIGCOMM '99, pages
241–250, August 1999.

"Using queue time predictions for processor allocation", Workshop on Job Scheduling Strate-
gies for Parallel Processing, Springer-Verlag Lecture Notes on Computer Science Vol 1291,
1997.

"A parallel workload model and its implications for processor allocation", IEEE International
Symposium on High Performance Distributed Computing (HPDC), August 1997.

"Predicting queue times on space-sharing parallel computers", 11th International Parallel
Processing Symposium (IPPS), April 1997.

"Exploiting process lifetime distributions for dynamic load balancing", with M. Harchol-
Balter, Best Integration of Systems and Theory award, ACM SIGMETRICS '96, May 1996.

Book chapters:

"Teaching and Learning with Jupyter", online book at `https://jupyter4edu.github.io/jupyter-edu-book/`, December 2019.

"Exploiting process lifetime distributions for dynamic load balancing", with Mor Harchol-Balter, in *Mobility: Processes, Computers, and Agents*, edited by Dejan S. Milojicic, Frederick Douglis, and Richard G. Wheeler, Addison Wesley and the ACM Press, April 1999, pages 214-227.

Technical reports:

"Religious affiliation, education and Internet use", `http://arxiv.org/abs/1403.5534`, March 2014.

"Estimating the age of renal tumors", `http://arxiv.org/abs/1203.6890`, March 2012.

"A novel changepoint detection algorithm", `http://arxiv.org/abs/0812.1237v1`, December 2008.

Online articles

"Are first babies more likely to be late?", Towards Data Science, September 2019.

"The Inspection Paradox is Everywhere", Towards Data Science, August 2019.

"The U.S. Is Retreating from Religion", Scientific American blog, June 2017.

"College Freshmen Are Less Religious Than Ever", Scientific American blog, May 2017.

"Programming as a Way of Thinking", Scientific American blog, April 2017.

Videos/Webcasts:

"The Bayesian Zig Zag: Developing Probabilistic Models Using Grid Methods and MCMC", ACM Tech Talk, February 2019.

"Understanding statistical inference with Python", online training, O'Reilly Media, October 2017, December 2017.

"Statistical Inference", webcast, O'Reilly Media, May 2016.

"Learning to Love Bayesian Statistics", webcast, O'Reilly Media, May 2016.

"Data Exploration in Python", video series, O'Reilly Media, November 2015.

"Bayesian Statistics Made Simple", webcast, O'Reilly Media, October 2012.

"There's Only One Test", webcast, O'Reilly Media, October 2011.

Workshops/Tutorials:

Harvard University, "Eight Ways to Use Computation to Teach Everything Else", March 2019.

U.C. Davis, "Computation in STEM", half-day workshop, January 2018.

KEEN National Conference, "Eight ways to use computation to teach everything else", with Jason Moore, January 2019.

U.C. Davis, "Computation in STEM", with Jason Moore, half-day workshop, January 2018.

"Complexity Science", half-day tutorial, PyCon 2017, 2018, SciPy 2019.

"Introduction to Digital Signal Processing", half-day tutorial, PyCon 2017, 2018.

"Computational Statistics", half-day tutorial, PyCon 2016, 2015, SciPy 2015, 2017.

"Bayesian Statistics Made Simple", half-day tutorial, ODSC Boston 2016, 2017, 2018. PyCon 2012-16; SciPy 2015, 2019. Boston Data Festival 2014, 2016. Boston Python User Group 2012-13.

Invited talks/Panels:

PyData NYC, "The Inspection Paradox is Everywhere", November 2019.

SciPy 2019, "Generational changes in support for gun laws", July 2019.

PyData NYC, "Generational changes in support for gun laws", October 2018.

JupyterCon panel, "The Future of Jupyter in Education", August 2018.

Jupyter Popup Boston panel, "Jupyter in Education" panel, March 2018.

U.C. Davis, "Python as a Way of Thinking", January 2018.

New England Microsoft Developers, "Python as a Way of Thinking", June 2017.

PyData Boston, "Religion in the U.S.", June 2017.

Bentley University, "Bayesian Statistics", November 2016.

Boston Bayesians, "Bayesian Bandits from Scratch", July 2016.

Bentley University, "Learning to Love Bayesian Statistics", April 2016.

University of Richmond, "Python as a way of thinking", April 2016.

James Madison University, "Python as a way of thinking", April 2016.

PyCaribbean, "Python as a way of thinking", and "Regression Analysis with Python, Pandas, and StatsModels", February 2016.

Strata + Hadoop World, "Learning to Love Bayesian Statistics", October 2015.

Boston Data Festival, "The Inspection Paradox", September 2015

SciPy 2015, "Will Millennials ever get married?", July 2015.

SciPy 2015, "Basic Sound Processing in Python", July 2015.

PyData Boston, "Survival analysis in Python", March 2015.

Interviews:

DataFramed, "Uncertainty in Data Science", September 2018.

Talk Python Podcast, "Python in Engineering", July 2017.

Big Beacon Radio, "Programming as a Way of Thinking", June 2017.

Courses:

Software Systems, 2011, 2012, 2014, 2015, 2016, 2017, 2018, 2019.

Complexity Science, 2016, 2017, 2019.

Data Science, 2014, 2015, 2017, 2019.

Modeling and Simulation, co-taught 2010, 2014, 2017, 2018.

Computational Bayesian Statistics, 2013, 2014, 2016, 2018.