Lawren Smithline

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Present Employment

Research Staff, Center for Communications Research, Princeton, NJ.

As a member of the research staff, I contribute to the company's team oriented approach to Department of Defense-supported mathematics research. My interest in signal processing, developed while at CCR, together with my pure mathematics background, has afforded me an opportunity to work with a large number of collaborators. Results span analysis, theorems, prototype algorithms, and production software.

Education

University of California, Berkeley, CA, Ph.D. in Mathematics, June 2000.
Dissertation title: *Exploring p-adic modular forms.*
Dissertation advisor: Robert Coleman (Number Theory).
NSF Graduate Fellowship. Candidate in Philosophy, January 1997.

Cambridge University, Cambridge, UK. September 1994 - June 1995.
Certificate of Advanced Study in Mathematics.
Matriculated Emmanuel College.

Harvard University, Cambridge, MA. Graduated June 1994.
A.B. *summa cum laude* in Mathematics. Hoopes Prize for senior thesis.
Barry Goldwater Scholarship. Certificate for Excellence in Teaching.
Putnam Competition Honorable Mention, 1990, top hundred, 1991, 1992.
Phi Beta Kappa. Dean's List. John Harvard Scholarship.

Ithaca High School, Ithaca, NY. Graduated June 1990.
Westinghouse Science Talent Search semifinalist.

Experience

Assistant Professor Cornell University, Ithaca, NY.
Responsibilities include teaching undergraduate mathematics and research on number theory, rigid analysis, and combinatorial algebra. (2000-2004)

SCAMP Center for Communications Research, Princeton, NJ,
Department of Defense mathematics research, directed by Dr. David Goldschmidt. (Summer '93, '94, '01, '02, '04)

Internship BARRA, Inc., Berkeley, CA,
Applied stochastic methods to Merton's problem of lifetime asset allocation, supervised by Dr. Nicolo Torre. (Summer 1998)

Teaching Assistant Harvard University and University of California
Responsible for leading discussions, grading exams and homework, conducting office hours for undergraduate math and computer science. (Various academic semesters, Fall 1991 – Fall 1999)

Interests

Triathlon, music.

Publications

L. Smithline, "A cipher to Thomas Jefferson," *American Scientist*, 97 (2, March-April 2009): 142–149.

S. Kutin, D. Moulton, and L. Smithline, "Computation at a distance,"
Chicago Journal of Theoretical Computer Science (2007), vol. 2007.
Also arXiv:quant-ph/0701194v1.

L. Smithline, "Bounding slopes of p-adic modular forms,"
cited as arXiv:0705.3614v1 in D. Loeffler, "Spectral expansions of overconvergent modular functions," *International Mathematics Research Notices* (2007), vol. 2007.

L. Smithline, "Probabilistic pairwise sequence alignment," arXiv:q-bio/0409035v1.

L. Smithline, "Computing lowest slopes of p-adic modular forms,"
submitted to *Journal of Computational Mathematics.*

J. Ellenberg, G. Sherman, et al, "The combinatorics of rewritability in finite groups" in
Proceedings of the Biennial Ohio State-Denison Conference, Paris: World Scientific, 1993.

L. Smithline, "Bandwidth of the complete k-ary tree," *Discrete Mathematics*, 142 (1995) 203–212.

Presentations

A cryptic letter to Thomas Jefferson,
various venues from March 2008, including Cornell, Harvard, and Princeton Universities .

Computation at a distance,
various venues from March 2008.

Slopes of p-adic modular forms,
June 1999, Park City Mathematics Institute, Park City, UT.

Compact operators with rational generating functions,
April 2002, Combinatorial Algebraic Geometry Seminar, Cornell, Ithaca, NY.

Bandwidth of the complete k-ary tree,
January 1993, AMS-MAA Joint Meetings, San Antonio, TX.

Anagrams in groups,
January 1992, AMS-MAA Joint Meetings, Baltimore, MD.

Undergraduate Research

NSF REU University of Minnesota, Duluth,
Graph theory research directed by Professor Joseph Gallian. (Summer 1992)

NSF REU Rose Hulman Institute of Technology, Terre Haute, IN,
Group theory research directed by Professor Gary Sherman. (Summer 1991)

Internship Cornell National Supercomputing Facility, Ithaca, NY,
SuperQuest Supercomputing Institute, directed by Helen Doerr. (Summer 1990)