Lawren Smithline
Curriculum Vitae
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RESEARCH INTERESTS

Mathematical and computational biology, computational number theory.

EDUCATION

UC Berkeley	Ph.D., June 2000.
Cambridge University	Certificate of Advanced Study in Mathematics, June 1995.
Harvard University	A.B., *summa cum laude*, mathematics, June 1994.

PH.D. DISSERTATION

Exploring slopes of p-adic modular forms, Robert Coleman, advisor.

HONORS AND AWARDS

NSF Graduate Fellowship

Certificate for Excellence in Teaching, 1993

Phi Beta Kappa

Hoopes prize for senior thesis, *Modern Integer Factorization*, 1994.

Barry Goldwater Scholarship

Putnam Competition Honorable Mention, 1990, top hundred 1991, 1992.

International Computer Problem Solving Contest, 1989, first in world.

RESEARCH POSITIONS

Cornell University, Visiting Assistant Professor of Mathematics, 7/03 to present.
VIGRE Assistant Professor of Mathematics, 7/00-6/03.

Center for Communications Research, Princeton, NJ, Summer '93, '94, '01, '02, '04
Summer Conference on Applied Math Problems (SCAMP). I contributed to the company's team oriented approach to classified Department of Defense mathematics research.

BARRA, Inc., Berkeley, CA, Summer '98
I analyzed a model of Merton's problem of lifetime asset allocation using stochastic calculus, supervised by Dr. Nicolo Torre.

University of Minnesota, Duluth, Summer '92
I constructed an algorithm to demonstrate the bandwidth of a certain class of graph theoretic trees as a participant in a National Science Foundation Research Experience for Undergraduates (REU) directed by Professor Joseph Gallian.

Rose Hulman Institute of Technology, Terre Haute, IN, Summer '91
I researched problems on a generalization of commutativity in finite groups. Professor Gary Sherman directed this National Science Foundation REU.

Cornell National Supercomputing Facility, Ithaca, NY, Summer 1990
I implemented an original parallel algorithm for reduction of a matrix to Hessenberg form, a preparatory step for determining eigenvalues. The project derived from my Westinghouse Science Talent Search semifinalist winning entry. Helen Doerr directed the SuperQuest Supercomputing Institute.

TEACHING EXPERIENCE

Cornell University from Fall 2000.
I have taught Linear Algebra, Abstract Algebra, Calculus, and Introduction to Number Theory. In Spring 2003, I will teach a new course on Cryptography. In Fall 2002, I was nominated for the departmental teaching prize.

Harvard University and **University of California**, various academic terms, '91–'99
As teaching assistant, I led discussion sections, graded exams and homework, and conducted office hours for undergraduate math and computer science. I was awarded a citation for teaching excellence in '93 at Harvard and '98 at Berkeley.

PROFESSIONAL SERVICE

I organized the Berkeley math graduate student colloquium in 1997-8.

I served on the Cornell math department committee to award the Ithaca High School senior math prize in '01, '02, and '03.

I organized a new seminar at Ithaca High School for their dozen students who completed the math and related courses offered, with David Bock, of Ithaca HS, and several Cornell math graduate students.

I presented a module on Cryptography for high school students as part of Cornell Math Department's Math Explorers Club outreach program.

PUBLICATIONS

Probabilistic pairwise sequence alignment, submitted.

Backtracking improves sequence alignment among 90 species of bees, in preparation.

Compact operators with rational generation, Proceedings of the Canadian Number Theory Association, 2002, accepted.

Computing lowest slopes of p-adic modular forms, submitted.

Bounding slopes of p-adic modular forms, submitted.

A short proof of a lower bound on the density of smooth numbers, in preparation.

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

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.

CONFERENCE PRESENTATIONS

Compact operators with rational generation, Canadian Number Theory Association VII, Montreal, QC, May 2002.

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

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

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

ADDITIONAL SKILLS

Fluency in a range of computer programming languages, including C, LISP, Pascal, and several mathematics packages.

REFERENCES

upon request.