

HAN M. DUONG

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Education

- **University of Illinois at Urbana–Champaign** 2000-present
Champaign-Urbana, IL
 - Ph.D. candidate with expected graduation date of May 2008
 - Research in discrete geometry, number theory and combinatorics (2002-present)
 - Research in cryptography and elliptic curves (2000-2002)
- **Budapest Semesters in Mathematics at BME** Spring 1999
Budapesti Műsaki és Gazdaságtudomány Egyetem; Budapest, Hungary
 - Studied combinatorics and graph theory, cryptography, and number theory
 - Appeared on the cover of 1999 Math Horizons while in Budapest
- **Jacksonville University** 1996-2000
Jacksonville, FL
 - Graduated magna cum laude with B.S. degree in Mathematics
 - Mathematics major, with minors in Physics and Computer Science
 - Williams Scholar (full scholarship and study abroad support)
 - Florida Undergraduate Scholar

Research

- **Areas of Interest**
 - Primary interest: convex and discrete geometry, with an emphasis on lattice polytopes and triangulations
 - Other interests: combinatorial and number theoretic interpretations of results from geometry, cryptography
- **Research Experience**
 - Research Assistant, University of Illinois at Urbana–Champaign Fall 2007
I currently work under the supervision of B. Reznick, continuing research on several lattice polytope conjectures. Funding is being provided by the UIUC Campus Research Board.
 - Computing the Continuous Discretely, Banff International Research Station August 2005
This was a two week summer workshop for graduate students focusing on lattice point enumeration. Topics included Ehrhart theory, polytopal decomposition, and Dedekind sums. Funding was provided by the Mathematical Sciences Research Institute.
 - Research Assistant, University of Illinois at Urbana–Champaign Summer 2005
I worked under the supervision of B. Reznick and continued research toward my thesis. Funding was provided by the Air Force Research Laboratory via an MURI grant.
 - Research Assistant, University of Illinois at Urbana–Champaign Summer 2004
I was a research assistant for B. Reznick and was responsible for computing the number of lattice points in special classes of tetrahedra. I also implemented programs that searched for equivalence classes of “clean” tetrahedra based on the number of interior points. The computations lead to several conjectures and generalizations into higher dimensions, some of which are proved in a paper currently in preparation. Funding was provided by the Air Force Research Laboratory via an MURI grant.

- **Research Experience (Continued)**

- Research Assistant, University of Illinois at Urbana–Champaign 2001-2002
I worked under the supervision of N. Boston and R. Blahut researching elliptic curve cryptography security. I was initially involved in the software implementation of a hyperelliptic coprocessor. When the group moved toward a hardware implementation, I was invited to do research with the biometrics research group. Funding was provided by the NSF CRCD grant *A cryptography center for research and education* and the Motorola Communications Center grant *Security of elliptic curve cryptosystems*.

Teaching

- **Achievements**

- Finalist for the mathematics department's nomination for 2007-2008 LAS and Campus Award for Excellence in Undergraduate Teaching by a Graduate Student (still in progress)
- Nominated for the Mathematics Department Instructional Award every year
- Several appearances in the UIUC "Incomplete List of Teachers Ranked as Excellent"

- **Teaching Experience**

University of Illinois at Urbana–Champaign

- Math 234: Business Calculus, lecturer, large lecture format (5 times)
- Math 234: Business Calculus, full instructor, summer course (1 time)
- Math 234: Business Calculus, teaching assistant, discussion section (1 time)
- Math 230: Calculus II, full instructor (2 times)
- Math 220: Calculus I, full instructor (2 times)
- Math 119: Pre-Calculus, teaching assistant, Merit Workshop format (1 time)
- Math 115: Pre-Calculus, full instructor, summer course (1 time)

Service

- **UIUC Mathematics Department**

- Course captain for Math 234
- Developed basic web interface for Math 234 large lecture instructors (uses overLIB by E. Bosrup), currently in use by M. Dennison:
<http://www.math.uiuc.edu/~masimmon/234>
- Served as a mentor to incoming graduate students
- Assisted in the hiring process of new system administrators for the UIUC Math Department
- Helped in providing technical support for the UIUC Math Department for part of 2001

- **Other**

- Copy-editing and indexing of *The Lost Notebook and Other Unpublished Papers, Vol 2* by B. Berndt and G. Andrews, to be published
- Spring 2005: early reader of *Computing the Continuous Discretely* by M. Beck and S. Robins

Preprints

- H. Duong, *Minimal volume k -point lattice simplices*, in preparation
http://www.math.uiuc.edu/~handuong/handuong_preprint.pdf

Presentations and Conferences

- **Presentations**

- University of Illinois at Urbana–Champaign: Geometric Potpourri Seminar, *Minimal volume k -point tetrahedra*, Fall 2006
- University of Illinois at Urbana–Champaign: Seminar for Graduate Students, *Conjectures on clean lattice tetrahedra*, Spring 2004
- University of Illinois at Urbana–Champaign: Cryptography and Information Protection Seminar, *Using efficient endomorphisms for faster multiplication on elliptic curves*, Fall 2001
- Jacksonville University: JU Undergraduate Research Symposium, *Modeling the three-body problem through parallelization*, Spring 2000
This was a senior research project with a fellow student, E. Greco. We submitted a grant proposal to the Society of Physics Students for a network cluster, and received funding through the American Institute of Physics.

- **Conferences**

- Invited to attend the Information Theory and Statistical Learning International Conference, *Information-Theoretic Aspects of Integer-Point Enumeration in Polyhedra Workshop*, Summer 2008
I am planning to contribute a talk tentatively titled *Partial classification of lattice simplices by the geometry of interior lattice points*
- Attended the Number Theory Fest hosted by the University of Illinois at Urbana–Champaign, Spring 2007
- Attended the Midwest Number Theory Conference for Graduate Students IV hosted by the University of Illinois at Urbana–Champaign, Fall 2006
- Attended the AMS, IMS, SIAM Joint Summer Research Conference, *Integer Points in Polyhedra–Geometry, Number Theory, Algebra, Optimization*, Summer 2006
- Attended the 2003 Mathematics of Public–Key Cryptography Conference hosted by the University of Illinois at Chicago
- Attended the Third Midwest Arithmetical Geometry in Cryptography Workshop hosted by the Illinois Center for Cryptography and Information Protection, Fall 2001

Technical Skills

- **Native Languages:** English, French, and Vietnamese
- **Programming Languages:** C, C++, Saturn Assembly
- **Computer Algebra Systems:** Mathematica, Maple, Mathcad, Magma
- **Web Development:** JavaScript, PHP, HTML

References

- **Bruce Reznick** (Advisor)
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University of Illinois at Urbana–Champaign
reznick@math.uiuc.edu
- **Matthias Beck**
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San Francisco State University
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- **Sinai Robins**
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- **Robert Muncaster** (Teaching Reference)
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