

Thomas Vidick

Thomas Vidick
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RESEARCH INTERESTS Quantum Computation, Complexity Theory, Cryptography, and Algorithms.

EDUCATION ◇ **University of California, Berkeley**
Currently pursuing a Ph.D. in Computer Science (2007-present)
Advisor: Umesh Vazirani
Relevant classes taken: Machine Learning, Computer Vision, Abstract Algebra, Complexity Theory, Randomized Algorithms, Quantum Computation, Algorithmic Game Theory, Mathematical programming
GPA: 3.95/4.0

◇ **University Paris 7**
Masters in Computer Science (2006-2007)
Classes taken: Analysis of Algorithms, Cryptography, Quantum Computation, Game Theory, Distributed Algorithms, Coding Theory, and Computational Geometry.
Ranked 2nd, Grade 19/20
Master's project: *A study of Entanglement in Quantum Interactive Proof Systems*.
Advisor : Julia Kempe, LRI, Orsay

◇ **École Normale Supérieure, Paris**
Magistère [B.Sc.]. Major in Computer Science, Minor in Mathematics (2002-2007)
Ranked 1st, Grade 19/20

PUBLICATIONS ◇ **Entangled games are hard to approximate**
Julia Kempe, Hirotada Kobayashi, Keiji Matsumoto, Ben Toner, and Thomas Vidick
49th Annual IEEE Symposium on Foundations of Computer Science (FOCS), 2008
Invited to special issue of SICOMP dedicated to selected FOCS'08 papers (2009)
Also short contributed talk at QIP'08, Delhi

◇ **Using Entanglement in Quantum Multi-Prover Interactive Proofs**
Julia Kempe, Hirotada Kobayashi, Keiji Matsumoto, and Thomas Vidick
Computational Complexity (special issue dedicated to selected CCC'08 papers), Vol. 18(2), p. 273–307 (2009)
Also appeared in the 23rd IEEE Conference on Computational Complexity (CCC), 2008, and as a long contributed talk at QIP'08, Delhi

◇ **Sieve Algorithms for the Shortest Vector Problem are Practical**
Phong Nguyen and Thomas Vidick
Journal of Mathematical Cryptology, 2(2):181-207, 2008.

- ◇ **On the Asymptotic Height of Heegner Points**
Guillaume Ricotta and Thomas Vidick
Canadian Journal of Mathematics, 60(6):1406-1436, 2008.

- RECENT TALKS AND VISITS
- ◇ **KITP, Santa Barbara, September '09**
Participant in the "Quantum Information Science" program.
 - ◇ **CWI, Amsterdam, June '09**
Visited Prof. Harry Buhrman for a month. Worked on three-prover XOR games. Also worked with Ronald de Wolf in communication complexity.
Gave a talk on "Quantum interactive proofs".
 - ◇ **Tel-Aviv University, May '09**
Visited Prof. Julia Kempe for a month. Worked on the complexity class QMA(2).
 - ◇ **Caltech, March '09**
Gave a talk on "Entanglement in quantum games"

- RESEARCH PROJECTS AND WORK EXPERIENCE
- ◇ **Research internship at Nec Labs America (Summer '08)**
Worked on two projects: Quantum Interactive Proofs with Martin Roetteler, and Entanglement in Communication Complexity with Dmitry Gavinsky.
 - ◇ **Breeze : Automatic Tagging in Family Albums (Fall '07/Spring '08)**
Project in Computer Vision with Lubomir Bourdev, under the supervision of Jitendra Malik. Implementation in Matlab and C.
 - ◇ **Research Internship at École Normale Supérieure (Fall '06)**
Algorithms for CVP and SVP, under the supervision of Phong Nguyen
The internship included a practical implementation of Ajtai, Kumar and Sivakumar's algorithm for the shortest vector problem in lattices, and a detailed analysis of its complexity.

- TEACHING EXPERIENCE
- ◇ **Fall '08. Teaching Assistant for EECS70, Discrete Math and Probability**
 - ◇ **2003-2006. Preparation to Oral Exams in Mathematics and Computer Science (Caml).** Given to students in their second year of University, Classes Préparatoires Saint-Louis, Paris
 - ◇ **2004-2006. Tutoring in mathematics.** Several private students from college and the two first years of university. Intensive courses given to classes of 7 to 15 students preparing for the "Grandes Écoles".

- SCHOLARSHIPS
- ◇ Berkeley Regent's Graduate Fellowship (2007-2008)
 - ◇ Selected to participate in a 10-week exchange with CMI, Chennai, India. Full travel and housing support granted by ENS and CMI (March-May 2007).
 - ◇ 4-year full support undergraduate scholarship from École Normale Supérieure (2002-2007).

- TECHNICAL SKILLS
- ◇ C/C++ (including the NTL number theory library), Matlab, Caml, Pari/GP, Magma