

# GIULIO GENOVESE

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## EDUCATION

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<b>Dartmouth College</b> Ph.D. candidate in Mathematics, Advisor: Daniel Rockmore	Summer 2006 – Present
<b>Dartmouth College</b> M.S., Mathematics	Fall 2004 – Spring 2006
<b>University of Pisa, Italy</b> B.S., Mathematics, <i>110 Cum Laude</i>	Fall 2000 – Summer 2004
<b>Scuola Normale Superiore of Pisa, Italy</b> Diploma, Mathematics, <i>70 Cum Laude</i>	Fall 2000 – Summer 2004

## EXPERIENCE

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### Instructor, Dartmouth College Mathematics Department

<i>Introductory Statistics</i> (Math 10)	Spring 2008
Full responsibility for course, including writing lectures, maintaining class website ( <a href="http://gauss.dartmouth.edu/~m10s08/">http://gauss.dartmouth.edu/~m10s08/</a> ), designing homework and exams.	
<i>Calculus with Algebra and Trigonometry</i> (Math 2)	Winter 2007
Full responsibility for course, including writing lectures, maintaining class website ( <a href="http://gauss.dartmouth.edu/~m2w07/">http://gauss.dartmouth.edu/~m2w07/</a> ), designing homework and exams.	

### Teaching Assistant, Dartmouth College Mathematics Department

<i>Calculus of One and Several Variables</i> (Math 8)	Winter 2006
<i>Mathematics for the Physical Sciences</i> (Math 15.1)	Fall 2005
<i>Calculus of One and Several Variables</i> (Math 8)	Winter 2005
<i>Multivariate Calculus</i> (Math 13)	Fall 2004
Led three tutorial/review sessions per week, assisted students with homework, graded exams.	

### Tutor, Gruppo Olimpiadi della Matematica

<i>Gara di Cesenatico 2004</i>	May 2004
Problem proposer and grader for some of the problems of the national edition of the Italian mathematical olympiads.	
<i>Gara di Cesenatico 2003</i>	May 2003
Problem proposer and grader for some of the problems of the national edition of the Italian mathematical olympiads.	
<i>Giornalino della Matematica</i>	2002 – 2004
Collecting problems and reviewing solutions for an online magazine aimed at students participating to the Italian version of the mathematical olympiads ( <a href="http://olimpiadi.dm.unipi.it/">http://olimpiadi.dm.unipi.it/</a> ).	

## PUBLICATIONS

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G. Genovese, G. Leibon, M.R. Pollak, D.N. Rockmore, Improved IBD detection using incomplete haplotype information.

Submitted for publication

G. Genovese, Weighted agglomerative clustering to solve normalized cuts problems.

Proceedings of the 8th International Workshop on Pattern Recognition in Information Systems.

G. Genovese, Improving the algorithms of Berlekamp and Niederreiter for factoring polynomials over finite fields.

*Journal of Symbolic Computation*, Volume 42 (2007), pages 159–177

## SOURCE CODE

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<http://gauss.dartmouth.edu/~genovese/imprberl.tar.gz>

Source code in C++ for the algorithm described in the paper “Improving the algorithms of Berlekamp and Niederreiter for factoring polynomials over finite fields”.

<http://gauss.dartmouth.edu/~genovese/lll.java>

Source code for an educational Java applet to visualize how the LLL (Lenstra-Lenstra-Lovasz) algorithm works.

## SELECTED PRESENTATIONS

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| <i>Improved IBD detection using incomplete haplotype information</i>               | June 2009     |
| Talk – Genetic of Complex Diseases and Isolated Population meeting, Trieste, Italy |               |
| <i>Mathematical Models in Population Genetics</i>                                  | May 2009      |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>The Monte Carlo Markov Chain Revolution</i>                                     | April 2009    |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>Improved IBD detection via an improved Hidden Markov Model</i>                  | February 2009 |
| Talk – Applied Mathematics Seminar, Dartmouth, NH                                  |               |
| <i>Extracting information from genotype data of closely related individuals</i>    | January 2009  |
| Talk – Joint Mathematics Meetings, Washington, DC                                  |               |
| <i>Bayesian Networks</i>   | December 2008 |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>Hidden Markov Models</i>  | August 2008   |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>Weighted agglomerative clustering to solve normalized cuts problems</i>         | June 2008     |
| Talk – Pattern Recognition in Information Systems workshop, Barcelona, Spain       |               |
| <i>A guided introduction to probability distributions and their applications</i>   | May 2008      |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>Retrieving information from correlation matrices</i>                            | November 2007 |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>The mathematics behind Google</i>   | August 2007   |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>Fun and applications with the discrete Fourier transform</i>                    | March 2007    |
| Talk – Graduate Student Seminar, Dartmouth, NH                                     |               |
| <i>Report on the integer-factorization project</i>                                 | March 2006    |
| Report – Arizona Winter School, Tucson, AZ   |               |
| <i>How to solve sparse linear systems over finite fields</i>                       | March 2006    |
| Talk – Number Theory Seminar, Dartmouth, NH  |               |

*Factoring polynomials over algebraic extension of primitive finite fields*  
Talk – Mega '05 Conference, Alghero, Italy

May 2005

## PROFESSIONAL DEVELOPMENT

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Dartmouth College Teaching Seminar

Summer 2006

Participant in intensive 10-week seminar with six other graduate students. Discussed readings on different theories of teaching and ways of learning. Conducted two week-long workshops for high school students. Created syllabus and developed lectures and activities to teach students non-Euclidean geometry and number theory.

Computer knowledge: Unix, C++, Java, Matlab, Latex

Fluent in Italian, English, and Spanish. Studied French in high school.

## HONORS AND AWARDS

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### **Dartmouth College**

Graduate Fellowship, Sep. 2004 – present

### **Premio Luigi Casati - Onaosi**

Award of 5000 euros assigned by the Accademia Nazionale dei Lincei for undergraduate thesis.

### **Scuola Normale Superiore**

Fellowship, Nov. 2000 – Oct. 2004

### **Championnat des jeux mathématiques et logiques**

First prize at the French mathematical competition held in Paris, August 2002

### **International Mathematical Olympiads**

Bronze medal at the International Mathematical Olympiad held in Korea, July 2000