



Giuseppe Ottaviano

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Education

- January 2009–
current **Ph.D. Student in Computer Science**, *Università di Pisa*, Pisa.
Working on succinct and compressed data structures. Expected graduation date: 2013.
- 2006–2008 **Laurea Specialistica (Master's degree) in Mathematics**, *Università di Pisa*.
Graduated with 110/110 *cum laude*.
- 2003–2006 **Laurea (Bachelor's degree) in Mathematics**, *Università di Pisa*.
Graduated with 110/110 *cum laude*.

Experience

- January 2012–
July 2012 **Research Intern**, *Microsoft Research*, Cambridge.
Working on computer vision, video compression, image classification and indexing.
- November 2010–
November 2011 **Research Intern**, *Microsoft Research*, Cambridge.
Worked on compressed data structures for storage of realtime data and integration of social network data in recommendation engines.
- February 2010–
September 2010 **Software Development Engineer**, *Bing - Microsoft STC*, London.
Worked on approximate string search and machine learning for ranking. Developed the pipeline for Autosuggest for international markets, including diacritic restoration and online spell corrections for non-English languages. Developed compressed data structures for efficient storage of large sets of strings.
- February 2006–
January 2009 **Software Engineer**, *Ask.com*, Pisa.
Worked on clustering problems, image similarity, distributed systems, core libraries, video search.
- 2004–current **Tutor for the Italian Olympiads in Informatics**.
Selection and training of the Italian team for the International Olympiads in Informatics (IOI).
- 2003 **IOI Italian team training**.
Selected for the Italian team. Attended intensive training in algorithms and coding.

Publications

- R. Grossi and G. Ottaviano. **Fast Compressed Tries through Path Decompositions**. In *Proceedings of the Meeting on Algorithm Engineering and Experiments (ALENEX)*, 2012.
- R. Grossi and G. Ottaviano. **The Wavelet Trie: Maintaining an Indexed Sequence of Strings in Compressed Space**. In *Proceedings of the Symposium on Principles of Database Systems (PODS)*, 2012.
- G. Ottaviano and R. Grossi. **Semi-Indexing Semi-Structured Data in Tiny Space**. In *Proceedings of the 20th ACM Conference on Information and Knowledge Management (CIKM)*, 2011.

Patents

- 2008 **Systems and methods for personalizing a newspaper**, *A. Signorini, G. Ottaviano, A. Gulli*, U.S. Patent 20080262998, filed on 17/04/2007 while working at Ask.com.

Master's thesis

- title *Spectral approximation algorithms for graph cut problems*
- supervisors Prof. Roberto Grossi, Prof. Luca Trevisan
- description Experimental analysis of a new spectral algorithm for approximating MAXCUT.

Bachelor's thesis

title (translated) *Wavelet regularization methods for image deblurring*
supervisors Prof. Dario A. Bini
description Study and implementation of a regularization method for linear inverse problems in Hilbert spaces using assumptions of sparseness in wavelet bases, applied to image deblurring.

Awards

- 2012 **SIGMOD/PODS 2012 Travel Award, Scottsdale, US.**
- 2012 **ALLENEX 2012 Travel Award, Kyoto, Japan.**
- 2011 **CIKM 2011 Travel Grant, Glasgow, UK.**
- 2006 **Scholarship of INdAM for Laurea Specialistica.**
Scholarship of the Italian Institute of Higher Mathematics for Master's degree. Placed 5th in national ranking.
- 2003 **Scholarship of INdAM for Laurea.**
Scholarship of the Italian Institute of Higher Mathematics for Bachelor's degree. Placed 10th in national ranking.
- 2003 **Silver medal at IOI (International Olympiads in Informatics).**
Placed 55th in world ranking, 1st of the Italian team.

Languages

Italian **Native**
English **Fluent**

Technical skills

OS Advanced Linux and Mac OS X, good Windows
programming Advanced C++ (including STL and Boost libraries) and Python (including internals of the interpreter) knowledge. Good C#, F#, Javascript and LLVM. Basic Java, x86 assembly, Ruby, Bash, and Haskell knowledge.
architecture Good knowledge of modern CPU architectures. Good knowledge of distributed systems for batch processing. Basic knowledge of networks.
scientific computing Good Python+SciPy. Basic Matlab and Mathematica.
typography \LaTeX .
web design HTML5 and CSS3, Javascript. Basic Django and Ruby On Rails.
database PostgreSQL, MySQL, SQLite, CouchDB and MongoDB.

Interests

computer science Succinct and compressed data structures, data compression, machine learning, nearest point search in high dimensional spaces, coding theory, graph algorithms, image processing, compilers.
programming Library design, distributed systems, language design, metaprogramming (in particular C++ template metaprogramming), JIT compilers.
mathematics Geometry, numerical linear algebra, algebraic topology, computational commutative algebra, logic, non-standard analysis, category theory.
visual arts Photography and typography enthusiast, chemical and digital darkroom.