

Résumé

Alessandro Cosentino

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Research Interests

My research is in *theoretical computer science* and, more specifically, in the field of *quantum computing*.

I am particularly interested in questions regarding quantum information theory, quantum query complexity and structural complexity theory.

Specific problems include: local distinguishability of quantum states, oracle complexity, limitations of small-depth circuits, applications of convex programming to quantum information theory.

Programming Skills

The coding related to my research is in the MATLAB/Octave language and I use the CVX package for *convex programming*.

When I program for fun, I try to write software that is useful for other people and unrelated to my research. I identify myself in the following quote by Scott Aaronson:

If I hadn't gravitated to the extreme theoretical end of computer science, I think I might have gone instead to the extreme practical end, rather than to any of the points in between.

I started as a Java/C++ coder, but lately I have transitioned to *web development* and I am mostly experienced with PHP server-side and JavaScript client-side.

Education

Ph.D. in Computer Science

University of Waterloo
January '10 – present

Supervisor: Prof. John Watrous
Expected graduation date: April '15

M.Math in Computer Science

University of Pisa
February '09

Thesis supervisors: Prof. Anna Bernasconi and Prof. Simone Severini

B.Math in Computer Science

University of Pisa
July '06

Thesis supervisors: Prof. Anna Bernasconi and Prof. Laura Semini

Publications

For an updated list of publications, see **my profile** on *arxiv.org*.

Work Experience

Google Summer of Code student developer

Organization: KDE
Summer '12

Under the mentorship of Jakob Sack, I created the ownCloud News app, a feed reader for ownCloud. The app is among the highest rated apps on the ownCloud App store. I am still involved in the project, but currently it is most actively maintained by Bernhard Posselt.

UNIX Consultant

Math Faculty Computing Facility, University of Waterloo
Winter '12, Fall '12

Assisting students, faculty and staff with computer related problems, both in person and on the help-desk newsgroup.

Season of KDE student developer

Summer '11

Participated with the *KDE PIM* team, under the mentorship of Frank Osterfeld, working on Akregator, the feed reader shipped with KDE. I built an Akonadi resource to store feeds locally.

Programmer

Department of Computer Science, University of Pisa
Summer '07

Designing and implementing a software to map tutors and students for internships at the Department of Computer Science.

Other Experience

Outreach Program for Women mentor and org coordinator

Organization: ownCloud
Summer '14

I mentored the applicant Lyndsey Jane Moulds with the project of building a Firefox OS app that uploads pictures taken from the phone camera to ownCloud.

Together with Jan-Christoph Borchardt, I coordinated the first participation of ownCloud at OPW.

Teaching assistant

University of Waterloo
2010 – 2013

Courses:

- Theory of Quantum Information (graduate course)
- Data Structures and Data Management
- Algorithms
- Introduction to Computer Science 1

Google Code-in org administrator

Organization: KDE
2012

I helped Teo Mrnjavac and Lydia Pintscher with admin jobs. This included: approving new tasks, helping students with questions, watching students' requests and forwarding them to the mentors.

Exchange programs

Research intern

LIAFA, Université Paris Diderot
February '13 – April '13

I worked with Prof. Frédéric Magniez on a problem in quantum query complexity.

While at LIAFA, I helped with the organization and I was a speaker of a mini-course on semidefinite programming in quantum information.

Exchange student

Aarhus University
September '07 – March '08

Under the *Erasmus program* at the Department of Computer Science.

Awards

David R. Cheriton Graduate Scholarship

2014 – 2015

Professional Service

Reviewer for the journals *APS Physical Review A*, *IEEE Transactions on Information Theory*, and for the *XVII Conference on Quantum Information Processing (2014)*.

Misc

- Global Representative of Italy at University of Waterloo.
- Captain of soccer and futsal team Hopeless Experts for five seasons at University of Waterloo.
- Parlo italiano.