

Indaco Biazzo

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Objective

I have always been fascinated by problems that hold together the complexity of the systems under study and the potential impact on the society. The integration of different domains, fields, platforms has always been for me a source of intellectual and working stimulation. In the era of information society, due of the high level of jobs specialization, the integration of informations and data represents a huge opportunity for economic and social development. In this context big data analysis tools and data visualization techniques are key elements to reach these objectives.

Summary

I'm a Ph.D graduated in physics. I have strong analytical and mathematical modelling skills. With several years of experience in big data and complex systems domains, I managed both big data computational analysis problems and data visualization and web presentation of results.

Research

My research interests follow several apparently divergent lines. One is related to the so-called Science of City. The accumulation of huge amount of data in the last years allows, nowadays, to base on new quantitative studies the research on one of the most complex systems: the urban systems. Another line of research is on the cross-field interaction between statistical physics of complex systems in classical and quantum physics with the optimization algorithm and inference problems. Another line of research is about visualisation and presentation of the scientific results: new interactive platforms and visualization tools could be crucial in order to reduce the barrier between different discipline and to reduce the learning curve.

teaching experience

Physics I, teaching assistant - Politecnico di Torino

Turin, Italy — 2010

Computer Science, I.I.S. E. Majorana

Turin, Italy — 2014

Experience

Post-Doc, Politecnico di Torino - DISAT

Turin, Italy — 12/2017-

I'm working on inference problems in epidemic spreading, analyzing huge amount of data related to livestock trade exchange and on urban mobility studies and data visualization on interactive maps.

Post-Doc, Università La Sapienza - Physics Dip. / ISI Foundation

Rome-Turin, Italy — 01/2017- 08/2017

Postdoc in the [SocialDynamics](#) Lab of Prof. Vittorio Loreto at the physics department of Università la Sapienza of Roma.

Researcher, ISI Foundation

Turin, Italy — 2014 - 2016

I worked in the [Citizen Science & Smart Cities Lab](#) of Prof. Vittorio Loreto at ISI. I'm interested in urban mobility studies, city information lab, data visualization and social systems using complex systems tools and analysis approach.

Accomplishments

- Ideation, creation and implementation of [citychrone.org](#) platform.
- Urban mobility studies.
- Implementation of [CityChroneTable](#).
- Gamification experience and citizen science ([kreyon project](#)).

Researcher, Politecnico di Torino

Torino, Italy — 2013-2014

I worked in the group (CMP) of Prof. Riccardo Zecchina. I focused on applications of new algorithms, borrowed from statistical physics of complex systems, to optimization problems and quantum physics.

Accomplishments

- Innovative use of message passing algorithms to quantum physics problems.
- Comparison studies between message passing Algorithms and linear programming technique in optimization problems.

Education

Politecnico di Torino

Ph.D. — 2010-2014

Ph.D. student, Physics Department, Politecnico di Torino; Supervisor: R. Zecchina. Title of the Ph.D.'s thesis: "Cavity algorithms under global constraints: classical and quantum problems."

Università la Sapienza di Roma

Master in Physics — 2009

Thesis supervised by Prof. Giorgio Parisi and Dott. Francesco Zamponi. Final mark 110/110 e lode.

Ecole Normale Supérieure de Paris

Thesis — 2009

Preparation of the Master's thesis, supervised by Dr. Francesco Zamponi.

Università la Sapienza di Roma

Bachelor in Physics — 2007

Bachelor's thesis supervised by Prof. Luciano Pietronero and Dott. Andrea Gabrielli. Final mark 109/110.

University of Geneva

Erasmus — 2005-2006

High school diploma

Liceo Scientifico "Taletè" in Roma, Italy. 2002

Skills

- Expert user of Unix based operating systems (Linux and Mac Os X).
- Advanced knowledge of C++, Python and nodeJS/javascript.
- Good knowledge of mongodb.
- Good knowledge of web developing, web based map libraries and meteor platform.

Languages

[Italian – native language]
[English – Good knowledge] IELTS exam score 6 (2013)
[French – Good knowledge]

References

Available upon request.

Publications

[Algorithms and architecture of an interactive platform for transport analysis and planning in urban systems.](#)

I. Biazzo

submitted to The 5th IEEE International Conference on Data Science and Advanced Analytics (2018)

[Bethe free-energy approximations for disordered quantum systems](#)

I. Biazzo and A. Ramezanpour

Phys. Rev. E 89, 062137 (2014)

[Cavity algorithms under global constraints: classical and quantum problems](#)

I. Biazzo

Ph.D. Thesis (2014)

[Low-temperature excitations within the Bethe approximation](#)

I. Biazzo and A. Ramezanpour

Journal of Statistical Mechanics: Theory and Experiment 2013 P04011 (2013)

[Performance of a cavity-method-based algorithm for the prize-collecting steiner tree problem on graphs](#)

I. Biazzo and A. Braunstein and R. Zecchina

Physical Review E 86 026706 (2012)

[A note on rattlers in amorphous packings of binary mixtures of hard spheres](#)

F. Caltagirone and I. Biazzo and G. Parisi and F. Zamponi

THE JOURNAL OF CHEMICAL PHYSICS (2010)

[Theory of amorphous packings of binary mixtures of hard spheres](#)

I. Biazzo and F. Caltagirone and G. Parisi and F. Zamponi

Physical review letters 102 195701 (2009)

Open Source
Repository

<https://github.com/CityChrono/>