

Martino Sorbaro Sindaci

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Education

2014
2018

EuroSPIN – Erasmus Mundus Doctoral Programme in Neuroinformatics,
University of Edinburgh & KTH Royal Institute of Technology, Stockholm.

Supervisors: M. Hennig (Edinburgh), A. Kumar (Stockholm).

2011
2013

Master's degree in Physical Sciences, *University of Pavia, Italy.*

Final mark: 110/110 with distinction.

Dissertation title: Dynamics of Kuramoto model on complex networks.

Supervisors: G. Montagna (Pavia), A. Goltsev (Aveiro, Portugal)

2008
2011

Bachelor's degree in Physics, *University of Pavia, Italy.*

Final mark: 110/110 with distinction.

Dissertation title: Some physical applications of artificial neural networks

Supervisor: O. Nicrosini (INFN, Pavia)

Other schools and courses

2018

The Carpentries Instructor Training, *2-days online workshop.*

Designed to train instructors to teach introductory programming. Evidence-based teaching techniques are covered.

2015

Advanced scientific programming in Python, *Summer School*, Munich, Germany,
<http://python.g-node.org/>.

A course designed to take scientists' Python skills from intermediate to advanced.

2015

Computational Approaches to Memory and Plasticity, *Summer School*, NCBS,
Bangalore, India, <http://camp.ncbs.res.in/>.

A two-weeks school in computational neuroscience focused on plasticity.

Work and teaching

2018

Deep Learning intern, *MetaLiquid s.r.l.*, Milan, Italy.

(Contribution to the company's Deep Learning software backend, development of software for DL applications (convnets, GANs))

2017

Teaching assistant, *Computational Approaches to Memory and Plasticity Summer School*, NCBS, Bangalore, India.

Selection of participants, organisation, preparation of talks, assistance with projects. I gave introductory talks about dynamical systems, reinforcement learning, and neural coding.

2016

Teaching assistant, *Dynamics and Vector Calculus; Physics 1A; Informatics Research Review*, U. of Edinburgh.

Workshops, tutorials, marking. Teaching award nominations from two students.

2012

Tutor, *Physics for Biology and Health Sciences students*, U. of Pavia.

Exercise sessions for small groups and classes of up to 40 students.

Volunteer Work

2013

Volunteer, *Uvikiuta*, Dar Es Salaam, Tanzania.

Private tuition to small groups of students during summer holidays.

Maths and Physics temporary teacher at a high school in a Maasai village.

Contribution to various community development projects and administration.

Achievements

2016

Google European Doctoral Fellowship, in *Computational Neuroscience*.

Given to outstanding students in the field. Involves a significant bursary, contact with a Google mentor, attendance to annual meetings and simplified access to Google internships.

2017

Best Picture Award, at the *StratNeuro retreat*, Stockholm.

Prize for the best scientific image among those submitted at a Swedish neuroscience retreat.

Languages

Italian

Native

Mother tongue

English

Fluent (C1)

Daily use, plus focus on scientific writing

Portuguese

Fluent (B2)

A year spent in Portugal, further frequent use

Spanish

Intermediate (A2)

Good understanding, casual use

French

Basic (A2)

Studied in school

Swahili

Very basic

Introductory course: mostly grammar

Personal

Sports and hobbies

Cooking (international), Fencing, Cycletourism, Climbing, Reading (literature, graphic novels, popular science).

2015

Committee member, *Edinburgh University Fencing Club*, (3 academic years).

2018

Website maintenance; publicity and merchandise officer, social media officer.

Skills

Programming

Preferred

Python

Basics of

Matlab, C, Tensorflow, Torch

Markup

LaTeX, some HTML

Tools and

git, multiprocessing, TDD, OOP

techniques

Research interests

Master's

I worked in the area of complex systems physics, studying the Kuramoto model of synchronisation, applied on a complex scale-free network, with analytical results and some simulations. I'm particularly fascinated by nonlinear dynamics and emergent phenomena, even in areas outside of Physics.

PhD Research in computational neuroscience and data analysis. Specifically, I worked on algorithms used to analyse data from neural probes (that record the activity of neurons in animal tissue) using dimensional reduction, clustering, and, more recently, autoencoders. At the same time, I worked on statistical models like Maximum Entropy and Restricted Boltzmann Machines, studying their application to neural data, but also trying to understand the way they encode information, in a multidisciplinary approach that involves computer science and machine learning together with physics and neuroscience. I had the chance to be in close touch with the Deep Learning community and use some of its methods; I'm very interested in the relationship between neuroscience and deep learning.

References

Matthias Hennig

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Arvind Kumar

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