PERSONAL INFORMATION

Christel Sirocchi

EDUCATION AND TRAINING

2021 – 2024 (expected)

Ph.D. Research Methods in Science and Technology - Formal Models, Data Analysis and Scientific Computing

University of Urbino, Italy

Research interests: Distributed Problem-solving, Emergence, Collective Intelligence, Crowdsourcing Platforms, Intractable Graph Problems, Algorithmic Game Theory

Ongoing projects:

• "Investigating forms of emergent behaviour inspired by biological complex systems using a multiplayer gaming platform"

• "Topological determinants of convergence rate in gossip algorithms" [1]

• "Analysis of the penetration and impact of CodeWeek in schools" [2]

• "Large-scale assessment of mobile crowdsensed data: a case study" [3]

Other duties:

• Tutor for the B.Sc. and M.Sc. degrees in Applied Informatics

• Representative of the PhD Students for the Department of Pure and Applied Sciences

• Coordinator the Association for PhD students and graduates in Urbino (ADI Urbino)

2018 – 2021

B.Sc. Applied Informatics

University of Urbino, Italy

Thesis: "A paradigmatic approach to joint statistical analysis and cross-validation of crowd-sourced datasets: an application to the Italian road network"

Grade: 110 cum laude

Awards: Winner of Learning by Doing Confindustria Marche 2020/2021

Extra-Curricular: UniUrb Lab Entrepreneurship Program, EU Code Week Mentor

2012 – 2015

M.Sc. Functional Genomics

University of Trieste, Italy

Thesis: "Genome-wide profiling of RNA during bacterial stress adaptation"

Grade: 110 cum laude

Scholarships: Erasmus Traineeship (8 months in UK + 4 months in Turkey)

Extra-Curricular: "Italy united for the correct scientific information" Project Coordinator

2009 – 2012

B.Sc. Pharmaceutical Biotechnology

University of Ferrara, Italy

Thesis: "Cloning of tau isoforms in Tet-Off conditional vector and expression in CHO cells"

Grade: 110 cum laude

Scholarships: Erasmus Traineeship (4 months in Belgium)

WORK EXPERIENCE

August 2016 – August 2020

Head of Science Department, IGCSE and A-level Biology Teacher

Istanbul International School, Istanbul, Turkey

• Analyzed students performance across all sciences using Excel; produced summative reports to offer insights on students performance and make data-driven recommendations.

• Assessed needs of 4 science laboratories, managed purchase orders and kept records.

• Oversaw implementation of Cambridge curriculum and ensured students' successful transition into IGCSE and A-level programs.

• Chaired regular meetings of the science department and reported to the administration.

• Instructed grades 9, 10, 11, and 12 in Biology according to Cambridge standards.

• Prepared students for the IGCSE A-level and SAT Biology exams and assisted year 11 and 12 students in university applications.

• Served as advisor for the Cambridge Secondary Science Competition.

April 2015 – September 2015

Research Assistant in Chemical Engineering

Boğaziçi University, Istanbul, Turkey

• Performed docking calculations to propose potential binding ligands related to enzymes.

• Optimized protocols for culturing yeast in a microfluidic chip.

• Wrote research proposals on the use of microchemostat for grant applications.

January 2014 – March 2015

Research Assistant in Systems and Synthetic Biology

University of Edinburgh, Edinburgh, United Kingdom

• Prepared Next-Generation Sequencing (NGS) library and analyzed NGS data using Python (pyCRAC pipeline) for visualization of RNA structures, measurement of RNA secondary structure transcriptome-wide and identification of new RNA thermosensors. [4]

• Optimized a new tool based on Hidden-Markov models for predicting transcriptome-wide RNA structure and benchmarked it against existing methods.

• Performed chemical modification of thermoshocked RNA in vivo and in vitro.

August 2014 – November 2014

Research Intern in Medical Genetics

Burlo Garofolo Pediatric Institute, Trieste, Italy

• Perform linkage analysis on genetic data using genome-wide association tools.

April 2012 – September 2012

Research Intern in Neuropathology

Université libre de Bruxelles, Bruxelles, Belgium

• Cloned bacterial genes in conditional vectors and expressed them in eukaryotic cells.

PUBLICATIONS

[1] **Christel Sirocchi** and Alessandro Bogliolo. “Topological network features determine convergence rate of distributed average algorithms”. In: Scientific Reports 12.1 (2022), p. 21831.

[2] **Christel Sirocchi**, Annika Ostergren Pofantis, and Alessandro Bogliolo. “Investigating Participation Mechanisms in EU Code Week”. In: arXiv preprint arXiv:2205.14740 (2022).

[3] **Christel Sirocchi**, Lorenz Cuno Klopfenstein, and Alessandro Bogliolo. “Large-scale assessment of mobile crowdsensed data: a case study”. In: IEEE Access (2022).

[4] Alina Selega, **Christel Sirocchi**, Ira Iosub, Sander Granneman, and Guido Sanguinetti. “Robust statistical modeling improves sensitivity of high-throughput RNA structure probing experiments”. In: Nature methods 14.1 (2017), pp. 83–89.

OTHER EDUCATION AND TRAINING

2017 **Cambridge International IGCSE & A level Biology Training**
Cambridge International Education, Tarabya British Schools, Istanbul, Turkey

2016 **Certificate in Teaching English to Speakers of Other Languages (CELTA)**
International Training Institute (ITI), Istanbul, Turkey

2015 **Certificate in Teaching English as a Foreign Language 150h (TEFL)**
LearnTEFL

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C1	C1
	ELTS Certificate 8.5				

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills

Team Work: I have fostered collaboration in the classroom as a teacher and among teachers as Head of Department, promoting interdisciplinary projects within and between departments. I joined several team projects and competitions, the most recent being the Learning by Doing Competition, which won the regional prize.

Mediating Skills: I served as an advisor for the Science Club, where I mediated group discussions and facilitated multiple groups of students in developing an original research idea.

Intercultural Skills: I have been working in an international environment, first as a researcher (in Belgium, the UK, and Turkey) and then as a teacher in a British International School, counting over 50 nationalities in the student and teacher body.

Organisational / managerial skills

After two years as a teacher in one of the most prestigious international schools in Turkey, I was promoted Head of the Science Department and supervised six teachers and four laboratories. In group projects, I frequently held the role of project manager due to my planning and task-managing skills, as well as problem-solving and data-driven forecasting abilities.

Computer skills

- LINUX OS /Bash Script
- MS Office Packages
- C
- C# / .NET
- R/Bioconductor
- Python (Pandas and Machine Learning libraries)
- SQL / MySQL
- Java / NetBeans
- Prolog, Haskell
- UI / UX (Adobe XD, Figma)

Other skills

Data Analysis and Visualization: I am passionate about science education and communication to various audiences (young children, students, citizens). I advocate for open data, which I analyze to gain insights into multiple aspects of society. I synthesize and represent complex information through graphs and infographics using Python libraries, Tableau, Adobe Illustrator.

Interdisciplinary skills: I embrace a holistic approach to science, and I have systematically sought research opportunities in interdisciplinary fields of science. I have gained a good background in most scientific disciplines and the ability to explore content and solve problems by integrating knowledge from multiple domains. I am particularly interested in the mathematical and computational modelling of complex systems in nature, which motivated my choice to specialize in both biology and computer science.

Driving licence B

Urbino, 13 January 2023