NICOLÒ PAGAN, Ph.D. ETH

ABOUT ME

I am a **computational data science engineer** with a multi-disciplinary background in the **behavioural**, **social**, and **network sciences**. I am an **independent researcher** and **experienced leader** of academic and industrial **research projects**. My work has been internationally recognised with publications and awards in top-tier journals such as **Nature Communications**.

I have a strong passion for **mathematical modelling** of real-world problems involving **human/AI decision-making** and a strong interest in **AI ethics** and generative AI.

Contact   nicolo.pagan@uzh.ch | +41 (0)78 9458438 | (he/him)
Website   https://nicolo-pagan.github.io/

COMPETENCES

Professional skills
Software development for mathematical modelling and data science
Multi-disciplinary background in behavioural economics and social sciences
Analysis, design, optimization, and auditing of human-AI systems interaction

Organizational skills
Funds acquisition, project management, and team supervision
Training and knowledge transfer
High-flying, creative thinking, and strategic planning
Proactive and eager to learn, reliable deadlines management

Social skills
Team-building, positive attitude, and conflict management
Public speaking to multi-disciplinary audience
Scientific research outreach to broader circles

IT SKILLS

Software

Foundational
MacOS - Unix
Windows OS
MS Office
iWork

Programming
C/C++
Bash
Fortran
Git

Data Science
Python/R
SQL/Pandas
TensorFlow
Tableau

Web Tools
HTML
CSS

LANGUAGES

Mother tongue   Italian
Other languages   English C2 | French B1 | German A2

EXPERIENCE

Lecturer and Postdoctoral Researcher
University of Zürich
Social Computing Group
Zürich CH
02 / 2021 - Present

and

Postdoctoral Researcher
ETH Zürich
Social Networks Lab
Zürich CH
05 / 2021 - 10 / 2021

Tasks

Responsible for the research project on fairness of Human/AI decision-making

Presentation of research findings to top-tier international conferences and workshops

Co-supervision of 3 doctoral students and 5 graduate students' projects

Teaching Social Computing course at the Informatics Department

Reviewer for top-tier international conferences and scientific journals

Competences

Project ideation, grant submission, and funding acquisition

Conducting independent research projects and leading the collaboration team

Teaching a module (56 hours) of 40+ undergraduate students, leading the teaching assistants, and conducting the examinations

Doctoral Student
ETH Zürich
Automatic Control Lab
Zürich CH
01 / 2016 - 04 / 2021

Tasks

Develop an independent research project on social network formation

Present the research findings at top-tier international conferences

Reviewer for several international conferences and scientific journals

Co-supervision of 4 graduate students' projects

Head of teaching assistants for several graduate courses (Game Theory and Control, Linear Systems Theory, and Non-linear Systems and Control)

Competences

Ideating and conducting an independent research project

Leading students' project

Lecturing, coordinating the teaching assistants and the examinations

Software Engineer and Research consultant in Computational Fluid-Dynamics (CFD)
Ascomp AG
Zürich CH
05 / 2013 - 12 / 2015

Tasks

Full-stack development, implementation of new mathematical models, and integration into the proprietary software TransAT

Project leader for the Cloud development

Research consultant for several industrial and academic projects in CFD

Responsible for the Nuresafe European project on nuclear power-plants safety

Co-supervision of 2 graduate students' projects

Competences

Developing HPC solutions in multiple languages (C++/Python/Fortran/Bash)

Automated Unit testing, Agile programming, Cloud computing, UI development

Planning, scheduling, and deployment of recurrent software releases

Project management, team leadership, supervision, budgeting

Presentation to customers and to international conferences

2016 - 2021	**Ph.D.**, Automatic Control Laboratory, ETH Zürich
	Thesis Modeling, analysis, and inference in social network formation
	Advisor Prof. Dr. Florian Dörfler

2011 - 2013	**M.Sc. in Computational Science and Engineering** (5.45/6), EPF Lausanne
	Thesis Coupling 1D system code OLGA with TransAT CFD
	Advisors Prof. Dr. François Gallaire, Dr. Sylvain Reboux

| 09 / 2012 - 04 / 2013 | **Internship**, ASCOMP AG, Zürich CH |
| | Design, development, and validation of the API coupling interface between proprietary and partner's software |

| 07 - 08 / 2012 | **Internship**, FLUXiM AG, Winterthur CH |
| | Design, development, and validation of a software plug-in for Organic Light Emitting Diodes (OLEDs) simulations |

2007 - 2010	**B.Sc. in Mathematical Engineering** (110/110 cum Laude), Politecnico di Torino
	Thesis Analysis of the car behaviour while transiting on an active speed bump
	Advisor Prof. Dr. Luigi Preziosi

INDEPENDENT COURSES

10.2021	AI+X Summit, Zürich CH
06.2020	Data Science in Techno-Socio-Economic Systems, ETH Zürich and NYU Courant
11.2019	Networks Dynamics in the Social, Economic, and Financial Sciences, Torino IT
10.2017	Autonomous Decision-Making, ETH Risk Center and Swiss RE, Zürich CH

SELECTED PUBLICATIONS

2023	**N. Pagan***, J. Baumann*, E. Elokda, G. De Pasquale, S. Bolognani, and A. Hannák: <u>A Classification of Feedback Loops and Their Relation to Biases in Automated Decision-Making Systems</u>. 3rd ACM Conference on Equity and Access in Algorithms,
2021	Mechanisms, and Optimization (EAAMO '23).
	N. Pagan, W. Mei, C. Li, and F. Dörfler. <u>A meritocratic network formation model for the</u>
2019	<u>rise of social media influencers</u>. *Nature Communications 12*, 6865 (2021).
	N. Pagan, and F. Dörfler. <u>Game theoretical inference of human behavior in social</u> <u>networks.</u> *Nature Communications 10*, 5507 (2019).

INTERESTS

Chess, Photography, Outdoor sports, Travelling

PERSONAL INFO

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20.12.1988, Italy
C Permit (CH)
B Driving License, own auto