Patrick Zulian

PhD in Computational Science · Numerical methods, solvers, high-performance computing

patrick.zulian@gmail.com Lugano, Switzerland
zulianp.github.io github.com/zulianp linkedin.com/in/zulianp
ORCID 0000-0002-5822-3288



Education and Key Qualifications

30/06/2017	PhD in Computational Science Thesis: *Geometry-Aware Finite Element Framework for Multi-Physics Simulations* Faculty of Informatics, ICS, USI, Switzerland Supervisor: Rolf Krause
2012	Master Faculty of Informatics, ICS, USI, Switzerland

Current Positions

2026–Present	Adjunct Professor, University of Victoria, Canada
2020–Present	Scientific collaborator, lecturer and team leader Euler Institute board member Faculty of Informatics, Euler Institute, USI, Switzerland
2023–Present	Postdoctoral researcher 1 (Senior) and team leader Faculty of Mathematics and Computer Science, UniDistance Suisse, Switzerland

Previous Positions

2017–2020	Postdoctoral researcher Faculty of Informatics, ICS, USI, Switzerland Supervisor: Rolf Krause
2018	Visiting scientist Lawrence Livermore National Laboratory, USA Mentor: Panayot Vassilevski
2016	Summer intern Lawrence Livermore National Laboratory, USA Mentor: Panayot Vassilevski
2006–2021	Swiss army career and service Chief operating officer for the COVID-19 pandemic deployment (2 months, 2020) Deputy company commander (1 month per year, 2015–2018) Section leader (2006–2014); Rank: First lieutenant

Supervision, Teaching, Committees, and Outreach

Mentoring	1 PostDoc, 1 PhD thesis (+1 in progress), 8 MSc theses, 3 BSc theses, 4 undergraduate internships
Teaching	1 BSc course director, 1 MSc course lecturer, 5 courses teaching assistant
Committee	3 PhD defenses Università di Pavia, external
Outreach	5 courses for high-school students and teachers, internships for middle-school students, career and CV counsellor (tech careers), USI Career Service (2026–)

Peer Recognition

Awards. In the last few years, I have been awarded grants from the Swiss National Science Foundation (SNF) and the Platform for Advanced Scientific Computing (PASC).

2024–2027	PI (USI part) and co-PI, SNF grant (50% of 754,364 CHF) *Immersed Methods for Fluid-Structure-Contact-Interaction Simulations and Complex Geometries* (nr. 200021_215627); Other PIs: L. Mangani (HSLU)
2025–2027	PI (UniDistance), PASC grant (50% of 461,000 CHF) *XSES-FSI: towards Extreme Scale Semi-structured Discretizations for FSI*; Other PIs: E. Casartelli (HSLU), L. Mangani (HSLU)
2023–2025	PI (USI), USI–FIR grant (50% of personal salary) *Simulation of Creeping Flows and Structure Interaction on Terabyte-sized Data*; Funding for preparatory work for resource acquisition and career development. Led to PASC and SNF grants
2021–2024	Co-PI and proposal contributor (USI), PASC grant *FraNetG – Fracture Network Growth*; PIs: Thomas Driesner (ETHZ), Rolf Krause (USI)
2020, 2024	Supercomputing allocations on CSCS and Piz Daint (20K node-hours) and KAUST Shaheen III (10M core-hours)

Invitations to International Conferences and Seminars. I was invited to deliver a keynote lecture on "Immersed techniques for coupled problems" at WCCM-PANACM 2024. I have presented an "Immersed Domain Approach for Fluid-Structure-Contact interaction Problems" at the MFEM seminar series. I have authored and co-authored approximately 50 presentations at major international venues.

Appointments. Selected as one of the founding board members of the Euler Institute, USI.

ADDITIONAL INFORMATION

Career Breaks, Diverse Career Paths and Major Life Events

During my PhD and PostDoc, I served each year one month in the Swiss army as deputy company commander of the medical company 2 in the logistic battalion 2. During the peak of the COVID-19 pandemic, I served two months as company-level chief operating officer coordinating the help to "Centre Hospitalier Universitaire Vaudois" (CHUV), one of the largest hospitals in Switzerland, "Pôle Santé Pays d'Enhaut", a small hospital in the mountains, and the ambulance service in Bern.

Other Contributions to the Research Community

Organization of Events. I have been involved in the organization of several events, including:

Minisymposia	4 minisymposia, organizer
Conferences	PASC Conference 2027, co-chair of the Engineering domain Contact Mechanics International Symposium (CMIS 2026), local organizer
Events	Euler seminars, 1 winter school

Scientific Review Activities

Review articles for scientific journals, including: Journal of Computational Physics (2019-2023, 2026), Water Resources Research (2021), Engineering Analysis with Boundary Elements (2024).

Open-Source Software

Proven commitment to open-source. I led the development of projects such as SFEM, Utopia, Moonolith. I have also contributed to international projects such as MFEM.