

VAIVA VASILIAUSKAITE

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EDUCATION

- Oct'16-Jun'20 **Imperial College London**
PhD in Physics of Complex Systems
Title: [Paths and Directed Acyclic Graphs](#). Supervisor: Dr. Tim S. Evans.
Thesis topics: directed acyclic graphs, time-ordered networks, ordered sets, paths.
- Sep'12-Jun'16 **University of Glasgow**
MSci in Theoretical Physics
Overall Grade: 1st Class
Master's Project: Bit-flip error in quantum Shor's algorithm. Supervisor: Prof. Stephen Barnett.
Bachelor's Project: Agent-based modelling of financial markets. Supervisor: Prof. David Ireland.
3rd year group project: Numerical and analytical models of electrostatic field in capacitors.
Core modules: Groups and Symmetries, Quantum Mechanics and Quantum Field Theory, Particle and Atom Physics, General Relativity.

WORK EXPERIENCE

- July'20-Now **Postdoctoral Researcher at ETH Zürich**
In Computational Social Science group (COSS), contributing to: SoBigData++: European Integrated Infrastructure for Social Mining and Big Data Analytics, funded under grant agreement H2020-EU.1.4.1.2, grant agreement ID: 871042.
- Aug'13-Sep'13 **Summer Intern at the University of Glasgow**
Data analysis for designing space-based sensor network for mitigation of space weather in James Watt School of Engineering (using Matlab).
- Jun'13-Aug'13 **Summer Intern at Culham Centre for Fusion Energy**
Data analysis project in Heating and Current Drive Physics Group (using IDL).

TEACHING

- 2020-now Lecturer of "Data science in socio-techno-economic systems" at ETH Zürich (co-lectured by Prof. D. Helbing and Dr. N. Antulov-Fantulin)
- 2020-now Supervision of PhD and Master's students at ETH Zürich.
- 2017-2019 Lab demonstrator for an undergraduate Physics course "Complexity and Networks" at Imperial College London (taught by Dr. T.S. Evans and Prof. K. Christensen).

PUBLICATIONS

- 2023 **V.V.**, N. Antulov-Fantulin. A Recipe for Well-behaved Graph Neural Approximations of Complex Dynamics – *arXiv preprint arXiv: 2301.04900*.
V.V.*, C.I. Hausladen*. How do circadian rhythms and neural synchrony shape networked cooperation?. *Frontiers in Physics*, 11, 160.
P. Gheorghiadu*, **V.V.***, et al. Entropology: an information-theoretic approach to understanding archaeological data (Accepted for Journal of Archaeological Method and Theory, Volume 29, issue 3).
M. E. Akbiyik, M. Erkul, K. Kämpf, **V.V.**, & N. Antulov-Fantulin. Ask" who", not" what": Bitcoin volatility forecasting with twitter data. In *Proceedings of the Sixteenth ACM International Conference on Web Search and Data Mining* (pp. 688-696).
- 2022 V. Krishna, **V.V.**, & N. Antulov-Fantulin. Question routing via activity-weighted modularity-enhanced factorization. *Social Network Analysis and Mining*, 12(1), 1-15.
V.V., T.S. Evans, & P. Expert. Cycle Analysis of Directed Acyclic Graphs. *Physica A: Statistical Mechanics and its Applications*: 127097.
V.V.*, N. Antulov-Fantulin*, & D. Helbing. On some fundamental challenges in monitoring epidemics. *Philosophical Transactions of the Royal Society A* 380.221: 20210117.

V.V., F. Lillo, & N. Antulov-Fantulin. Information dynamics of price and liquidity around the 2017 Bitcoin markets crash. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 32(4), 043123.

2020 V.V., F. Rosas. Understanding complexity via network science: a gentle introduction. DOI:10.47041/ECHO.2 *arXiv preprint arXiv: 2004.14845*.

T. S. Evans, L. Calmon, & V.V. The longest path in the Price model. *Scientific reports*, 10(1), 1-9.

V.V., T.S. Evans. Making communities show respect for order. *Applied Network Science* 5.1: 1-24.

2019 V.V., T.S. Evans. Social success of perfumes. *PLoS one*, 14(7), e0218664.

2018 V.V., T.S. Evans. Diversity from topology of citation networks – *arXiv preprint arXiv:1802.06015*.

* joint first authorship

TALKS

2022 Information dynamics of price and liquidity around the 2017 Bitcoin markets crash' FCA Seminar, UCL (London, UK)

2021 Entropology – Networks 2021, parallel session talk (Virtual).

Some Challenges in Monitoring Epidemics - Behavioural Studies Colloquium, ETH (Zurich, Switzerland)

2019 The longest path in Price model - NetSci 2019, parallel session talk (Burlington, Vermont, USA).

2019 Making communities show respect for order – NetSci 2019, parallel session talk (Burlington, Vermont, USA), NetSciX 2020, parallel session talk (Tokyo, Japan).

2018 Centrality and other orderings of nodes in DAGs – NetSci 2018, 5th Satellite on Quantifying Success, talk (Paris, France).

2018 Network of perfumes – NetSci 2018, lightning talk (Paris, France).

MISCELLANEOUS

EXPERTISE Numerical & mathematical models, statistics, dynamical, complex, network systems, machine learning, data science.

IT SKILLS Scientific computing and writing Python, Matlab, Java, C++, LaTeX.

REVIEWER Journal of Statistical Mechanics: Theory and Experiment, Physica A, Qeios, Scientific Reports, Applied Network Science.

MEDIA Dailymail, phys.org, earth.com.

EVENTS Conference track at AMLD 2022
'Networks Networking' & 'Advanced Topics on Networks' at Imperial College London, 2021

AWARDS Cormack Summer Vacation Research Scholarship, 2013.
Bronze medal in the International Olympiad on Astronomy and Astrophysics, 2012 (Brazil).
Silver medal in the Lithuanian National Olympiad on Astronomy and Astrophysics 2008, 2012.
Non-governmental physics school "Olympus of Physics" (Lithuania).

LANGUAGES English – C2
Lithuanian – C2 (mother tongue)
Russian – A1
German – A1

INTERESTS Rock climbing, mountaineering, alpinism, skiing, (trail) running, spending time with my dog.