

Ana Vranić

Curriculum Vitae

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Research Experience

- 2026-present **Assistant Professor.**
Scientific Computing Laboratory at Institute of Physics, Belgrade, Serbia
- 2024-2025 **Postdoctoral Researcher.**
Social Physics and Complexity Laboratory (SPAC) at LIP, Lisbon, Portugal
- 2018-2023 **Research Assistant.**
Scientific Computing Laboratory at Institute of Physics, Belgrade, Serbia

Education

- 2017-2023 **PhD in Physics**, *University of Belgrade, Serbia.*
Topic: Theory of complex systems, social networks properties, collective phenomena in social systems
Advisor: Dr. Marija Mitrovic Dankulov
Thesis: "Evolving complex networks: structure and dynamics"
- 2016-2017 **Master in Physics**, *University of Belgrade, Serbia.*
Topic: Strongly correlated electrons systems and Mott transitions
Advisor: Dr. Darko Tanaskovic
Thesis: "Thermodynamics and Electron Transport in the Hubbard Model on a Triangular Lattice"
- 2012–2016 **Bachelor in Physics**, *University of Belgrade, Serbia.*

Publications

Papers

- 2026 Aleksandar Tomašević, Ana Vranić, Aleksandra Alorić, and Marija Mitrović Dankulov. Reddit deplatforming and cohort mixing in generalist voat communities. *Scientific Reports*. Nature Publishing Group, 2026.
- 2026 Aleksandar Tomašević, Darja Cvetković, Sara Major, Slobodan Maletić, Miroslav Anđelković, Ana Vranić, Boris Stupovski, Dušan Vudragović, Aleksandar Bogojević, and Marija Mitrović Dankulov. Towards operational validation of LLM-agent social simulations: A replicated study of a Reddit-like technology forum. *EPJ Data Science*, June 2026.
- 2025 Ana Vranić, José Reis, Íris Damião, Paulo Almeida, and Joana Gonçalves-Sá. Global claims: A multilingual dataset of fact-checked claims with veracity, topic, and salience annotations. In *Proceedings of the 2nd International Workshop on Diffusion of Harmful Content on Online Web*, pages 85–94, 2025.
- 2025 Marija Mitrović Dankulov, Aleksandar Tomašević, Slobodan Maletić, Miroslav Anđelković, Ana Vranić, Darja Cvetković, Boris Stupovski, Dušan Vudragović, Sara Major, and Aleksandar Bogojević. Multi-platform aggregated dataset of online communities (madoc). In *Proceedings of the International AAI Conference on Web and Social Media*, volume 19, pages 2529–2538, 2025.
- 2023 Ana Vranić, Aleksandar Tomašević, Aleksandra Alorić, and Marija Mitrović Dankulov. Sustainability of stack exchange q&a communities: the role of trust. *EPJ Data Science*, volume 12, page 4. Springer Berlin Heidelberg, 2023.

- 2022 Ana Vranić, Jelena Smiljanić, and Marija Mitrović Dankulov. Universal growth of social groups: empirical analysis and modeling. *Journal of Statistical Mechanics: Theory and Experiment*, volume 2022, page 123402. IOP Publishing, 2022.
- 2021 Ana Vranić and Marija Mitrović Dankulov. Growth signals determine the topology of evolving networks. *Journal of Statistical Mechanics: Theory and Experiment*, volume 2021, page 013405. IOP Publishing, 2021.
- 2020 A Vranić, J Vučićević, J Kokalj, J Skolimowski, R Žitko, J Mravlje, and D Tanasković. Charge transport in the hubbard model at high temperatures: Triangular versus square lattice. *Physical Review B*, volume 102, page 115142. APS, 2020.

Conferences

- 2026 A. Vranić, L. Perfeito, P. Almeida, , and J. G-Sa. Differences in misinformation diffusion patterns can be explained by sampling choices. In *The Sixth International Symposium on Complex Systems (ISCS 2026)*, La Rochelle, France, 2026. Presentation.
- 2025 A. Vranić, P. Almeida, J. Reis, and J. G-Sa. Fake news spread: An analysis of Twitter across different topics. In *Conference on Complex Systems (CCS)*, Sienna, Italy, September 2025. Presentation.
- 2024 A. Vranić, P. Almeida, J. Reis, and J. G-Sa. News propagation on twitter – analysis of a diverse dataset does not show evidence of difference in fake news spread. In *Conference on Complex Systems (CCS)*, Exeter, UK, September 2024. Presentation.
- 2023 A. Vranić, A. Tomašević, A. Alorić, and M. Mitrović Dankulov. The role of collective trust in sustainability of stock exchange communities. In *International School and Conference on Network Science (NetSci)*, Vienna, Austria, July 2023. Poster.
- 2023 A. Vranić. Big data analysis with mapreduce. Tutorial at Data Science Conference Europe (DSC), November 2023. Available at: <https://ana-vranic.github.io/MapReduce-tutorial/>.
- 2022 Ana Vranić, Jelena Smiljanić, and Marija Mitrović Dankulov. Universal growth of social groups. In *11th International Conference on Complex Networks and Their Applications*, Palermo, Italy, 2022. Presentation.
- 2021 A. Vranić and M. Mitrović Dankulov. Growth signals shape the topology of evolving networks. In *Networks 2021: A Joint Sunbelt and NetSci Conference*, 2021. Presentation.
- 2021 A. Alorić, M. Mitrović Dankulov, A. Tomašević, and A. Vranić. Sustainability of stock exchange q-a communities: the role of social cohesion and trust. In *7th International Conference on Computational Social Science (IC2S2)*, 2021. Presentation.
- 2019 Ana Vranić and Marija Mitrović Dankulov. The role of driving signal in the evolution of social networks. In *8th International Conference on Complex Networks and Their Applications*, Lisbon, Portugal, 2019. Poster.
- 2018 Ana Vranić and Marija Mitrović Dankulov. Universal growth structure: physics perspective. In *COST TU1305 "Social Networks and Travel Behavior" Final Conference*, Milan, Italy, 2018. Poster.

Projects

- 2026 - **SAIFA - Serbian Artificial Intelligence Factory Antenna**, *HORIZON EUROPE*.
present participant
- 2024 - 2025 **FARE - FAKE NEWS AND REAL PEOPLE – USING BIG DATA TO UNDERSTAND HUMAN BEHAVIOUR**, *European Research Council*.
participant
- 2024 **CTRUST - Topology-derived methods for the analysis of collective trust dynamics**, *Science Fund of the Republic of Serbia*.
participant

- 2021-2023 **READ - Platform for Remote development of Autonomous Driving algorithms in a realistic environment, Collaborative Grant Scheme, Innovation Fund of the Republic of Serbia.**
participant
- 2020-2022 **ATLAS - Artificial Intelligence Theoretical Foundations fo Advanced Spatio-temporal Modelling of Data and Processes, Science Fund of the Republic of Serbia.**
participant

Reviewing Activities

Conference Complex Networks.
Conference NetSci.
Nature Data.
Royal Society Open Science.

Supervising Activity

- 2026 **Master student, Carlotta Burzioo**, Politecnico di Torino, Physics of Complex Systems.
thesis: User-Source interaction patterns in misinformation spread
- 2025 **Master student, Jacopo Carotenuto**, University of Padova, Physics of data master program.
thesis: Dynamics of information spread in online social systems
- 2024 **Undergraduate student, Maria Ines**, Instituto Superior Technico, Lisbon.
thesis: Information Diffusion on Complex Networks: a Case Study on a Twitter Dataset
- 2024 **Master student, Corentin Srun**, École normale supérieure (Paris).
Students Internship

Internships

- April-June **Department of Theoretical Physics (F-1), Jozef Stefan Institute, Ljubljana, Slovenia.**
2017 CEEPUS scholarship
topic: Transport in strongly correlated materials

Participations

- 2021 **Summer school Petnica Science Institute: Machine Learning (PSIML), Belgrade, Serbia.**
- 2019 **Workshop Complexity 72h, Lucca, Italy.**
paper: Community Detection in the Hyperbolic Space. M. Bruno, S. F. Sousa, F. Gursoy, M.Serafino, F. V. Vianello, **A. Vranic**, M. Boguñá arXiv:1906.09082
Report of the project completed in 72 hours during the workshop Complexity 72h.
- 2018 **Spring College on the Physics of Complex Systems, International centre for theoretical physics(ICTP), Trieste, Italy .**
- 2010-2012 **Petnica Science Center, Serbia .**
Attended physics programmes for high school students

Awards

- 2023 **"NetSci Open Arms Grant".**
- 2018 **"Prof. dr Ljubomir Ćirković" foundation award.**
Award for best MSc thesis defended at the Faculty of Physics of the University of Belgrade between 1 September 2017 and 31 August 2018

Computer skills

Programming Python, Julia, Mathematica, Matlab,

Database MySQL, Neo4j

Other LaTeX, MPI, bash, Gephi, PyTorch, Pytorch Geometric, Hadoop, MrJob

Languages

Serbian (native), English