



Lucia Kajanová

Doctoral student

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Research interests

Applications of nonlinear dynamical systems and partial differential equations to the study of real-world phenomena, including models in neuroscience and traffic flow. Focus on travelling waves, bifurcation theory, and pattern formation, using numerical methods. Interest in data science and machine learning.

Skills

Programming: R, Matlab (MatCont), Python, SAS, SQL, Git

Data & Visualization: BigQuery, Power BI, Markdown, Quarto

Mathematical & Data Skills: Mathematical modelling and simulation, Data preprocessing and visualization, Statistical analysis, Experience with AI tools

Tools: Microsoft Office, Jira, GitHub, LaTeX

Other Skills: Scientific writing, literature review, Critical and analytical thinking, Communication, Teamwork, Time management

Languages: Slovak (native), Czech (fluent), English (fluent), German (beginner)

Education

2024 – 2026	Master's degree in Applied Mathematics Specialization: Modelling and Computation Thesis title: <i>Advanced models of traffic flow</i> GitHub Repository	Masaryk University, Brno
2021 – 2024	Bachelor's degree in Mathematics Specialization: Financial and Insurance Mathematics Thesis title: <i>Modelling of a traffic flow</i>	Masaryk University, Brno
2013 – 2021	Grammar School of Janko Jesenský	Bánovce nad Bebravou

Work Experience

Jul – Sep 2025	Junior Software Developer (Intern) Full-time internship focused on data analysis and data science Developed data preprocessing scripts in R and Python Automated analytics tasks and visualized results	Gen Digital Inc.
2018 – present	Mathematics Tutor Over 800 hours of individual tutoring	

Teaching

2025	Mathematics Course Lecturer Faculty of Economics and Administration: CPM_PKMA – Preparatory Course in Mathematics	Masaryk University
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Publications

2026	Příbylová, L., Ševčík, J., Egorova, A., Husa, Š., Kajanová, L., et al. Astrocyte-induced dynamics of a pyramidal cell with a dendrite-connected astrocyte. <i>Journal of Computational Neuroscience</i> (2026). doi:10.1007/s10827-026-00924-x.	
2025	Příbylová, L., Ševčík, J., Halmazňa, T., Husa, Š., Kajanová, L., et al. Chaos links dendritic calcium to bursting in hippocampal pyramidal cells. <i>Chaos, Solitons & Fractals</i> , Elsevier, 2025. doi:10.1016/j.chaos.2025.116517.	

Certification

2024	Shared Data & Open Science Workshop	Masaryk University
2025	SAS Academic Specialization in Data Mining	SAS Institute
2025	SAS The Curiosity Cup Participant	SAS Institute
2025	SAS Certified Specialist: Base Programming Using SAS 9.4	SAS Institute

Activities and hobbies

- University Open Day Organization
- Mathematics Popularization
- Music (guitar)
- Formula 1