



# Štěpán Husa

PhD student



13.1.2003



Brno, Czech Republic



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## Research interests

Research interests in nonlinear dynamical systems and singularity theory, with a focus on bifurcation theory and its topological and algebraic aspects (e.g. Morse index). Diploma thesis on continuation of Arnold tongues in ODEs. Strong belief that software for visualization, continuation, and computation can reveal hidden structure in these problems, hence a strong interest in scientific programming.

## Skills

Programming: Matlab, Julia, Python, R, SQL, C#, C, .NET, Git, LaTeX

Mathematical & Data Skills, Linux, Software design, Networking, Communication, Teamwork, Time management, Project planning and organization, familiarity with a corporate environment, identification of key steps

Languages: Czech (native), English (fluent), Russian (advanced)

## Education

- 2025 – 2026 Master's degree in Applied Mathematics Masaryk University, Brno  
Specialization: Modelling and Computation  
Thesis title: *Equivariant Singularity Theory and Group Theory in Bifurcation Theory*
- 2022 – 2025 Bachelor's degree in Mathematics Masaryk University, Brno  
Specialization: Modelling and Computation  
Thesis title: *Singularity Theory in Bifurcation Theory*
- 2014 – 2022 Masaryk Grammar School Vsetín Vsetín

## Work Experience

- Technical Team Assistant Smpl.cz
- Desktop, database and API application developer Kubek.cz
- Programming Intern Edhouse
- Sound Technician Bsound

## Teaching

- Fall 2025 Seminar Instructor Masaryk University  
Faculty of Informatics:  
MB154 – Discrete Mathematics

## 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. *Journal of Computational Neuroscience* (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. *Chaos, Solitons & Fractals*, Elsevier, 2025. doi:10.1016/j.chaos.2025.116517.

## Activities and hobbies

In my free time I enjoy sports, trips with friends, and singing in a choir. I also like exploring new technological possibilities, especially in the world of IT – I run my own server and enjoy automating computer tasks.