

RNDr. Martin Černý

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Research Interests

- 📖 **Game Theory - Cooperative games, Auctions, Assignment problem**
- 📖 **Set Functions Theory**
- 📖 **Interval Linear Algebra**

Education

- 2021 – Now 📖 **Ph.D. in Computer Science** at Charles University.
Focus: *Incomplete cooperative games*.
- 2019 – 2021 📖 **M.Sc. in Computer Science** at Charles University.
Thesis title: *Cooperative games with partial information*.
- 2016 – 2019 📖 **Bc. in Computer Science** at Charles University.
Thesis title: *Interval matrices with Monge property*.

Research Publications

Journal Articles

- 1 M. Černý, J. Bok, D. Hartman, and M. Hladík, “Positivity and convexity in incomplete cooperative games,” *Annals of Operations Research*, 2024. 📄 DOI: 10.1007/s10479-024-06082-6.
- 2 J. Bok and M. Černý, “1-convex extensions of incomplete cooperative games and the average value,” *Theory and Decisions*, 2023. 📄 DOI: 10.1007/s11238-023-09946-8.
- 3 M. Černý and M. Grabisch, “Incomplete cooperative games with player-centered information,” *Discrete Applied Mathematics*, 2023. 📄 DOI: 10.1016/j.dam.2023.12.007.
- 4 M. Černý, “Interval matrices with Monge property,” *Applications of Mathematics*, vol. 65, no. 5, pp. 619–643, Sep. 2020. 📄 DOI: 10.21136/am.2020.0370-19.

Conference Proceedings

- 1 F. Úradník, D. Sychrovský, J. Černý, and M. Černý, “Reducing optimism bias in incomplete cooperative games,” in *Proceedings of the 23rd International Conference on Autonomous Agents and Multi-Agent Systems*, 2024.
- 2 M. Hladík and M. Černý, “Weak and strong consistency of an interval comparison matrix,” Springer, Cham, Nov. 2020, pp. 15–25. 📄 DOI: 10.1007/978-3-030-62509-2_2.

Workshops




- 1 F. Úradník, D. Sychrovský, J. Černý, and M. Černý, *Optimal querying of superadditive set functions to minimize ambiguity*, Presented at the 4th workshop on Graphs and more Complex structures for Learning and Reasoning (GCLR), 2024. 📄 DOI: 10.5555/3635637.3663047.

Research stays



- 2024  **Vrije Universiteit Amsterdam**, Amsterdam, Netherlands.
visiting prof. René van den Brink in *March 2024*.
- 2023  **University of Southern Denmark**, Odense, Denmark.
visiting prof. Peter Sudhölter and Ryan Tierney in *November - December 2023*.
- 2022  **Université Paris 1 Panthéon-Sorbonne**, Paris, France.
visiting prof. Michel Grabisch in *November 2022 - January 2023*.
- 2021  **HTWG Konstanz**, Konstanz, Germany.
visiting prof. Jürgen Garloff in *November 2021*.

Grants

Principal investigator

- 2023 – 2025  **(GAUK 206523) Uncertainty in cooperative games**
supported by Grant Agency of Charles University
- 2021 – 2023  **(GAUK 341721) Cooperative games with partial information,**
supported by Grant Agency of Charles University
- 2019 – 2021  **Student faculty grants**
principal investigator of several projects for undergraduate students

Team member



- 2022 – 2024  **(GAČR P403-22-11117S) Global sensitivity analysis and stability in optimization problems**
supported by Czech Science Foundation
- 2019 – 2020  **(GAČR P403-18-04735S) Novel approaches for relaxation and approximation techniques in deterministic global optimization**
supported by Czech Science Foundation

Teaching experience




Lectures

- 2021 – Now  **Cooperative game theory** (introduced)


Seminars

- 2020 – Now  **Cooperative game theory seminar** (introduced)
- 2023 / 2024  **Programming in ChatGPT** (introduced)

Tutorials

- 2019 – Now  **Linear Algebra I & II** (standard & advanced tutorials)
- 2022 / 2023  **Applications of Linear Algebra in Combinatorics**
- 21/22, 23/24  **Matroid Theory**

Supervised students

- 2024  **Master's student:** David Ryzák.
Thesis title: *Stochastic cooperative games*.

Supervised students (continued)

- 2023 ▀ **Undergraduate:** Richard Mužík.
Thesis title: *Integer cooperative games*.
- ▀ **Undergraduate:** Jan Pijálek (co-supervised).
Thesis title: *Iterative Methods for First-Order Nash Equilibria in Zero-Sum Games*.
- ▀ **Undergraduate:** Filip Úradník (co-supervised).
Thesis title: *Balancing Space Complexity and Ambiguity in Superadditive Set Functions*.
- 2023 ▀ **Undergraduate:** Kateřina Kuncová.
Thesis title: *Emergency response in town Žebrák*.

Miscellaneous Experience

Awards and Achievements

- 2023 ▀ **The Best Teaching Assistant** of the Computer Science Section
Faculty of Mathematics and Physics, Charles University.
- 2021 ▀ **Dean's Award for best diploma thesis** for *Cooperative games with partial information*.
Faculty of Mathematics and Physics, Charles University.

Organization

- 2023 ▀ **6th International Conference on Dynamics of Information Systems, DIS 2023**.
Member of local organizing committee.
- 2022, 2023 ▀ **Special session on Cooperative Game Theory** at Spring School of Combinatorics.
Organized by Faculty of Mathematics and Physics, Charles University.

Summer schools

- 2024 ▀ **Games and Artificial Intelligence Multidisciplinary Summer School, GAIMSS'24**.
A week long summer school organized by Université de Lorraine in Metz, France.

Skills

- Languages ▀ Czech (Native), English (C1), Swedish (B1), German (A2-B1).
- Coding ▀ Python, \LaTeX .