

# JÓZSEF PINTÉR

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## EDUCATION

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**Budapest University of Technology and Economics**  
**Doctoral School of Mathematics and Computer Science** 2022 -  
PhD in Mathematics

- Research topic:  
*Research and development of decision support systems based on network science and interpretable machine learning*  
Supervisor: Roland Molontay

**Budapest University of Technology and Economics**  
**Faculty of Natural Sciences** 2020 - 2022  
Master's in Mathematics, General Track

- Master's thesis:  
*Extremal problems of color-avoiding connectivity*  
Supervisors: Roland Molontay, Kitti Varga
- Degree classification: with honors (GPA: 4.87/5.0)

**Budapest University of Technology and Economics**  
**Faculty of Natural Sciences** 2017 - 2020  
Bachelor's in Mathematics

- Bachelor's thesis:  
*Selected competition problems from the NSUCRYPTO international cryptography olympiad*  
Supervisor: Gábor Péter Nagy
- Degree classification: with honors (GPA: 4.98/5.0)

## WORK EXPERIENCE

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**Deputy Head of Science and Technology** – Human & Social Data Science Lab 2025 -

**Junior Researcher** – Educational Development Informatikai Zrt 2024 -  
Development and integration of artificial intelligence-based systems

**Research Assistant** – ELKH-BME Stochastics Research Group 2022 -  
Network science and data science research, color-avoiding connectivity

**Machine Learning Operations Engineer** – HSDSLab - Human & Social Data Science 2020 -  
Data science and network theory R&D in medical, business, and social science domains

**Research Assistant** – BME - MILab TTK, FIEK 2021 - 2022  
Development of decision support systems for students entering higher education

**Data Analyst** – Barankovics István Foundation 2021 - 2022  
Analysis of electoral and economic data

**Research Assistant** – University of Debrecen (HU-MATHS-IN) 2020 - 2021  
Predictive analytics in healthcare

## UNIVERSITY TEACHING EXPERIENCE

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- BME - Faculty of Economic and Social Sciences 2022 -  
MSc Data Science course
- BME - Faculty of Natural Sciences 2019 -  
Calculus, linear algebra, coordinate geometry, Python programming, data science
- BME - Faculty of Civil Engineering 2021 - 2023  
Engineering Mathematics
- BME - Faculty of Electrical Engineering and Informatics (SZIT) 2018 - 2020  
Calculus, algorithm theory, probability theory
- Aquincum Institute of Technology 2021 - 2022  
Data Science – Project mentoring

## PUBLICATIONS

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1. Kui, B., Pintér, J., Molontay, R., Nagy, M., et al. (2022) *EASY-APP: An artificial intelligence model and application for early and easy prediction of severity in acute pancreatitis*. Clinical and Translational Medicine 12 (6), e842
2. Kiss, S., Pintér, J., Molontay, R., Nagy, M., et al. (2022) *Early prediction of acute necrotizing pancreatitis by artificial intelligence: a prospective cohort-analysis of 2387 cases*. Scientific Reports 12 (1), 7827
3. Csató, L., Molontay, R., Pintér, J. (2024) *Tournament schedules and incentives in a double round-robin tournament with four teams*. International Transactions in Operational Research 31 (3), 1486-1514
4. Pintér, J., Varga, K. (2024) *Color-avoiding connected spanning subgraphs with minimum number of edges*. Discrete Applied Mathematics 349, 25-43
5. Mészáros, J., Pintér, J., Ragács, A., Syi (2022) *Kilenc választás Magyarországon: A centrális erőter alakulása*. Társadalmi Riport, 389-414
6. Boros, E., Pintér, J., Molontay, R., et al. (2025) *New machine-learning models outperform conventional risk assessment tools in Gastrointestinal bleeding*. Scientific Reports 15 (1), 6371
7. Sziklai, B.R., Barnes, K., Pintér, J. (2025) *Realistic models for diffusion of innovation*. Social Network Analysis and Mining 15, 12
8. Pintér, J., Nagy, M., Köller, D.Á., et al. (2025) *An Interpretable Machine Learning Application for Predicting and Improving University Readiness*. International Symposium on Educational Technology (ISET), 1-6
9. Szabó, G., Pintér, J., Molontay, R., Fazekas, G. (2025) *Driving after stroke: A trichotomous logistic regression model to support decision making in uncertain cases*. Journal of Stroke and Cerebrovascular Diseases, 108439
10. Pintér, J., Varga, K. (2025) *Color-avoiding connected colorings and orientations*. arXiv:2509.05143

## CONFERENCE AND SEMINAR PRESENTATIONS

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1. Color-avoiding connected spanning subgraphs with minimum number of edges – Colloquium on Combinatorics (2022, Paderborn, Germany)

2. Color-avoiding connected spanning subgraphs with minimum number of edges (generalization to matroids) – 12th Japanese-Hungarian Symposium on Discrete Mathematics and Its Applications (2023, Budapest, Hungary)
3. Interpretable machine learning and its applications in higher education and medicine – MILab online seminar (2023)
4. Interpretable machine learning and its applications in higher education and medicine – Rényi Deep Learning Seminar (2022, Budapest, Hungary, <https://video.renyi.hu/video/ertelmezhetogepi-tanulas-es-alkalmazasa-a-felsooktatásban-es-az-orvostudományban-518>)

## NOTABLE COMPETITION RESULTS AND AWARDS

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1. Scientific Students' Conference paper: Prediction of Hungarian championship football match results using probabilistic and machine learning models – Joint work with Attila Ragács – Supervisor: Roland Molontay – Awards: BME Faculty of Economic and Social Sciences Departmental 1st Prize, National Scientific Students' Conference 2nd Prize
2. Scientific Students' Conference paper: Algorithmic extension of an NSUCRYPTO 2019 competition problem – Supervisor: Dr. Gábor Péter Nagy – BME Faculty of Natural Sciences Departmental Special Prize
3. University-wide Mathematics Competition, BME, 2020, 2nd place
4. NSUCRYPTO, International Cryptography Olympiad  
2020 – Special Prize  
2021 – Bronze Medal
5. BME – Outstanding Student of the Faculty of Natural Sciences (2022)
6. BME – New National Excellence Program (2023), Doctoral Excellence Scholarship Program (2023), and Cooperative Doctoral Program (2024) scholarships

## SKILLS

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<b>Programming</b>	Python, R, PostgreSQL, JavaScript
<b>Data Science Packages</b>	Tableau, RapidMiner sklearn, pandas, matplotlib, plotly, numpy, tensorflow, keras, pytorch, xgboost, tpot, networkx
<b>Web Development</b>	Streamlit, FastAPI
<b>Languages</b>	English (intermediate), German (basic)