

JÓZSEF PINTÉR

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EDUCATION

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

2022 -

- 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
Master's in Mathematics, General Track

2020 - 2022

- 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
Bachelor's in Mathematics

2017 - 2020

- 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

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

- 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

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 erőtér 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

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/ertelmezheto-gepi-tanulas-es-alkalmazasa-a-felsooktatasban-es-az-orvostudomanyban-518>)

NOTABLE COMPETITION RESULTS AND AWARDS

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

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