Peter Juhasz — Researcher

peter.juhasz@math.au.dk • www.peter-juhasz.com • Google Scholar
OrcID • ResearchGate • LinkedIn • GitHub

Summary

- PhD Fellow in Mathematics
- Completed research projects in spatial statistics, network science, automated driving and complex systems
- Published multiple research papers and patented a Gaussian regression based trajectory prediction model

Education

- **PhD in Mathematics**
  Aarhus University, Denmark *2022–*
  Thesis: Topological Data Analysis Based Models of Evolving Higher-Order Networks
- **Master of Business Administration with Highest Honors**
  Budapest University of Technology and Economics, Hungary, Specialized in Finance *2019–2021*
  Thesis: Prediction of Popularity of Memes using Machine Learning Methods
- **Master of Science in Physics**
  Budapest University of Technology and Economics, Hungary, Specialized in Applied Physics *2013–2016*
  Thesis: Examination of Spatially Embedded Complex Networks
  Erasmus+ Scholarship: Delft University of Technology (Applied Physics)
- **Bachelor of Science in Physics**
  Budapest University of Technology and Economics, Hungary, Specialized in Applied Physics *2010–2013*
  Thesis: Finite Element Method Plasma Simulation of Nitrogen Contaminated Ceramic Metal Halide Lamps

Professional Experience

- **Research Assistant in Spatial Statistics and Topological Data Analysis**
  Department of Mathemtics, Aarhus University, Denmark *2022–*
  - Developed topological data analysis based models for higher-order networks
  - Proved theorems in the field of marked spatial point processes
- **Deep Learning Researcher in Automated Driving**
  Department of Automated Driving, Bosch Group Hungary *2021–2022*
  - Trajectory prediction with Gaussian regression
  - Real time object tracking with temporal convolutional neural networks
  - Object detection and classification with ultrasonic sensors
- **Software Architect in Automated Driving**
  Department of Automated Driving, Bosch Group Hungary *2018–2021*
  - Coordinated 2 teams in the integration of driver monitoring camera for hands free driving
  - Certified Professional in Software Architecture (International Software Architecture Qualification Board)
- **Software Engineer for Mobile Networks**
  Business Unit IT & Cloud Products, Ericsson Telecommunications Hungary *2016–2018*
  - Analyzed response times of distributed database servers for optimal load balancing
  - Coordinated a team of eight as a deputy of the product owner
  - Implemented performance critical algorithms for Smart Services Routers

Publications, Patents

- Kate Barnes, **Peter Juhasz**, Marcell Nagy, Roland Molontay
  Topicality Boosts Popularity: A Comparative Analysis of NYT Articles and Reddit Memes *2024*
  Complex Networks & Their Applications XII, 02 2024.
- Christian Hirsch, Benedikt Jahnel, Sanjoy Kumar Jhawar, **Peter Juhasz**
  Poisson approximation of fixed-degree nodes in weighted random connection models *2023*
  arXiv preprint, arXiv:2311.12643, 12 2023.
- Christian Hirsch, **Peter Juhasz**
  On the topology of higher-order age-dependent random connection models *2023*
  arXiv preprint, arXiv:2309.11407, 9 2023.
- **Peter Juhasz**
  Information propagation in stochastic networks *2021*
  Physica A: Statistical Mechanics and its Applications, 577:126070, 9 2021.
- **Peter Juhasz**
  Method and device for predicting the trajectory of a traffic participant, and sensor system *2020*
  CNIPA: CN113988353A, EPO: EP3916697A1, JPO: JP2021190119A, USPTO: US2021366274A1, 5 2020.
- **Peter Juhasz**, Jozsef Steger, Daniel Kondor, and Gabor Vattay
  A Bayesian approach to identify Bitcoin users *2018*
  Public Library of Science One, 13:1-21, 12 2018
- **Peter Juhasz**, Szabolcs Beleznai, and Istvan Maros
  Finite element method plasma simulation of nitrogen contaminated metal halide lamps *2014*
  Comsol Conference Proceedings, 2014

Conferences, Presentations

- **Poster: Topological Data Analysis of Higher-Order Networks**
  Danish–Swedish Summer School on TDA and Spatial Statistics *2023*
- **Presentation: Trajectory Prediction Using a Gaussian Regression Model**
  Bosch Group: Bosch Innovation Day *2020*
- **Presentation: Probabilistic Localization of Bitcoin Users**
  Hungarian Academy of Sciences: Statistical Physics Conference *2016*
- **Poster: Dissecting Distributed Database Systems For Telecom Applications**
  Ericsson Telecommunications Hungary: Ericsson University Day *2016*
- **Poster: Finite Element Method Plasma Simulation of Ceramic Metal Halide Lamps**
  Comsol Multiphysics Conference *2014*

Teaching Experience

- **Data Project**
  Aarhus University, Course Code: F24.550201U004.A *2024*
  10 ECTS Computer Project Class, Spring Semester
- **Linear Transformations**
  Aarhus University, Course Code: E23.550171U010.A *2023*
  10 ECTS Exercise Class, Autumn Semester
- **Ordinary Differential Equations**
  Aarhus University, Course Code: F23.550141U011.A *2023*
  5 ECTS Exercise Class, Spring Semester
- **Advanced Calculus for Engineers**
  Aarhus University, Course Code: F23.280191U021.A *2023*
  10 ECTS Exercise Class, Spring Semester

Awards, Grants

- **Academic Mobility Grant for International Exchange**
  Evolving Stochastic Network Models *2024–2025*
  20 000 DKK, Aarhus University
- **PhD Fellowship Grant DDSA-PhD-2022-008**
  Topological Data Analysis Based Models of Evolving Higher-Order Networks *2022–2025*
  1 890 000 DKK, Danish Data Science Academy
- **Excellence Award for Outstanding Thesis and Diploma Work**
  Digitalization, Artificial Intelligence, and the Age of Data – What Makes a Meme Viral? *2021*
  350 000 HUF, Hungarian National Bank

Programming Skills

- **Python** ●●●●●
- **Git** ●●●●○
- **C++** ●●●●○

Languages

- **Hungarian** ●●●●●
- **English** ●●●●○
- **German** ●●○○○