Mgr. MARKÉTA MAKAROVÁ

MATHEMATICIAN, STATISTICIAN, DATA ANALYST

CONTACT

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Brno, Czechia

RESEARCH

High dimension statistics

Machine learning

Genomics & proteomics

EDUCATION

Masaryk university

2022 - 2026

Doctoral degree programme in Probability, Statistics and Mathematical Modelling

2020 - 2022

Master's degree programme in Statistics and Data Analysis

2017 - 2020

Bachelor's degree programme in Financial and Insurance Mathematics

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LANGUAGE SKILLS

Czech native

English C2

French A2

PROFILE

I am a doctoral student, mathematician, statistician, data analyst and overall a person who is enthusiastic about everything related to math and computer science. My current research deals with analysing large genomic, proteomic and other omic datasets leveraging machine learning techniques and high-dimension low sample size statistics. Through this effort, I'm developing methods which aim to deepen our understanding of biological processes. My passion extends to communicating the power of mathematics, statistics and thorough data analysis to both the academic community and the public.

WORK EXPERIENCE

Chief data analyst

Julie Bienertova-Vasku lab — 2022 - present

- Leading a team of statisticians and data analysts with different specializations.
- Distributing analytical work within the team based on personal expertise.
- Overseeing progress on projects, coordinating cooperation between multidisciplinary teams, and facilitating between-team communication.
- Validating, proofreading, and debugging analyses from junior members. Providing mentorship.
- Ensuring safe storage of sensitive medical data in compliance with university standards. Maintaining a consistent and complete archive of analytical documentation.
- Creating, expanding, and upkeeping of an in-house cloud knowledge base for the analytical team.
- Creating new methodologies for the analysis of genomic and proteomic datasets incorporating high dimensional statistical methods and machine learning models.
- Performing high-level proteomic analyses.
- Leading a cooperative effort in statistical analyses, analyses of functional data and complex high dimensional data analyses for studies within the research group.
- Presenting at weekly group meetings. Topics have included: safe data storage, an introduction to visualization and basic statistics, both simple and complex machine learning models (random forests, GPT 3.5), best practice in statistics.

Senior intern

ThermoFisher Scientific — 2020 - 2022

- Becoming familiar with the physics principles of X-ray and optic spectrometry.
- Closely cooperating with a mentor on various projects.
- Implementing optimization methods for improvement of optics alignment of in-development spectrometers.
- Applying statistical models to pre-process spectrometer-produced data.
- Working with a Swiss team on expanding existing in-use models for processing spectrometer data by introducing data-driven diagnostic tools, insightful visualization choices and further statistical inference capabilities.
- Further details were redacted due to a non-disclosure agreement protecting Thermo Fisher Scientific's proprietary technology.