Mykhaylo M Malakhov

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EDUCATION

UNIVERSITY OF MINNESOTA
PHD IN BIOSTATISTICS
Expected 2025 | Minneapolis, MN

ANDREWS UNIVERSITY
BS IN MATHEMATICS
May 2020 | Berrien Springs, MI
Minor in Computing

BUDAPEST SEMESTERS IN MATHEMATICS
STUDY ABROAD
Fall 2019 | Budapest, Hungary

LINKS

Twitter:// **MykMal**
GitHub:// **MykMal**
Google Scholar:// **e5Q7sMQAAAAJ&hl**
ORCID:// **0000-0002-6856-3913**

GRADUATE COURSES

COMPLETED
- Honors Analysis I & II
- Theory of Statistics I & II
- Biostatistics: Regression
- Advanced Regression and Design
- Linear Models
- Research Skills in Biostatistics
- Probability Models for Biostatistics
- Statistics for Human Genetics and Molecular Biology
- Seminar: Transethnic Association Studies
- Seminar: Imaging Genetics

CURRENT
- Foundations of Public Health
- Advanced Statistical Inference
- Bayesian Decision Theory and Data Analysis
- Advanced Statistical Genetics and Genomics
- Seminar: Imaging Genetics

SKILLS

TECHNICAL
Languages
R • Python • LaTeX
Tools
Unix/Linux • plink • PrediXcan

HUMAN LANGUAGES
English • Russian • Spanish

EXPERIENCE

UMN SCHOOL OF PUBLIC HEALTH | PREDOCTORAL TRAINEE
2020 - present | Minneapolis, MN

- Funded by a **National Institutes of Health** NIGMS T32 Training Grant through the **Interdisciplinary Biostatistics Training in Genetics and Genomics** program
- Developed a non-linear extension of **transcriptome-wide association studies (TWAS)** and showed that it identifies genes missed by standard TWAS
- Proposed statistical tests for determining whether the **expression levels** of a gene are significantly different between two tissues
- Currently building **deep learning models** that predict Alzheimer's disease by fusing genomic sequencing and brain imaging data
- Mentor: Wei Pan (University of Minnesota)

INSTITUTE FOR PURE & APPLIED MATHEMATICS | RESEARCHER
Summer 2019 | Los Angeles, CA

- Proposed novel **attractor reconstruction** and **model calibration** methods
- Showcased these methods by **inferring reaction rate coefficients** for hydrogen-oxygen combustion from a time series of one observable
- Mentors: Robert Martin and Daniel Eckhardt (Air Force Research Laboratory)

WILLIAMS COLLEGE | RESEARCH INTERN
Summer 2018 | Williamstown, MA

- Project 1: demonstrated how to improve management outcomes for **white-nose syndrome** in bats by considering metapopulation dynamics
- Project 2: established guidelines for **transboundary infectious disease management** when multiple administrative jurisdictions set different objectives
- Mentors: Julie C. Blackwood (Williams College) and Katriona Shea (Penn State)

PUBLICATIONS

1. Lin Z, Xue H, **Malakhov MM**, Knutson K, and Pan W. Accounting for non-linear effects of gene expression identifies additional associated genes in transcriptome-wide association studies. Human Molecular Genetics 2022. In press.
2. Blackwood JC, **Malakhov MM**, Duan J, et al. Governance structure affects transboundary disease management under alternative objectives. BMC Public Health 2021;21:1782.
3. Duan J, **Malakhov MM**, Pellett JJ, Phadke IS, Barber J, and Blackwood JC. Management efficacy in a metapopulation model of white-nose syndrome. Natural Resource Modeling 2021;34:e12304.

SELECTED AWARDS

National
- 2018 Barry M. Goldwater Scholarship

University of Minnesota
- 2020 Dean's PhD Scholars Award
- 2020 Jean Roberts Biostatistics Fellowship

Andrews University
- 2018 Harold T. Jones Scholarship for highest mathematical excellence
- 2018 Louis Ulloth Scholarship for most significant leadership
- 2016 Full tuition ACT/SAT Scholarship