Mykhaylo M Malakhov

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EDUCATION

ANDREWS UNIVERSITY
BS in Mathematics
May 2020 | Berrien Springs, MI
Minor in Computing
Total GPA: 4.0 / 4.0

BUDAPEST SEMESTERS IN MATHEMATICS
Study Abroad
Fall 2019 | Budapest, Hungary

LINKS

ORCiD:// 0000-0002-6856-3913
Google Scholar:// e5Q7sMQAAAAJ&hl
GitHub:// MykMal
LinkedIn:// mykmal
Facebook:// mykhaylo.malakhov
Instagram:// myk_mal

SELECTED COURSES

BUDAPEST SEMESTERS IN MATHEMATICS
Advanced Abstract Algebra
Combinatorial Optimization
Introduction to Mathematical Analysis
Statistical Methods
Theory of Computing

ANDREWS UNIVERSITY
Abstract Algebra I + II
Applied Mathematics
Complex Analysis
Computer Science I + II
Differential Equations
Differential Geometry
Foundations of Advanced Math
Geometry
Knot Theory
Linear Algebra
Math Modeling in Biology
Point-Set Topology
Probability Theory

SKILLS

PROGRAMMING
Over 3000 lines:
MATLAB • LaTeX • Java
Over 1000 lines:
Python • C++ • Processing
Familiar:
Cantera • Android • Linux

HUMAN LANGUAGES
Russian • English • Spanish

RESEARCH EXPERIENCE

AIR FORCE RESEARCH LABORATORY | Researcher & Manager
June 2019 – Aug 2019 | Los Angeles, CA

- Interned through **Research in Industrial Projects for Students**, Institute for Pure and Applied Mathematics, University of California Los Angeles
- Coordinated a team of four students
- Successfully inferred combustion reaction coefficients from incomplete data, thereby **computationally solving an experimentally infeasible problem**
- Methods used: optimal transport, information theory, dynamical systems
- Mentors: Robert S. Martin and Daniel Q. Eckhardt (both Air Force)

WILLIAMS COLLEGE | REU Research Intern
June 2018 – Aug 2018 | Williamstown, MA

- Participated in the **SMALL** Undergraduate Research Project; worked with three students in the Mathematical Ecology Group
- Project 1: demonstrated how spatial dynamics can affect management decisions for **white-nose syndrome in bats**, improving current strategy
- Project 2: established guidelines for **transboundary infectious disease management** when multiple administrative jurisdictions set different objectives
- Methods used: SIR-type differential equation models, discrete-time models
- Mentors: Julie C. Blackwood (Williams) and Katriona Shea (Penn State)

SEABIRD ECOLOGY TEAM | Undergraduate Research Fellow
June 2017 – Aug 2017 | Berrien Springs, MI

- Collaborated with three students to study the **effects of climate change** on seabird population dynamics
- Demonstrated that egg cannibalism can yield backward bifurcations which **allow the population to survive** at lower resource levels, and that egg-laying synchrony is detrimental when breeding seasons are short
- Methods used: periodic matrix models, bifurcation theory, stability analysis
- Mentors: Shandelle M. Henson (Andrews) and J. M. Cushing (Arizona)

SELECTED AWARDS

National
2018 Barry M. Goldwater Scholarship ($15,000)
Andrews University
2016-2020 J. N. Andrews Honors Scholar
2016-2020 Full tuition ACT/SAT Scholarship ($145,000)
Andrews University Department of Mathematics
2018 Harold T. Jones Scholarship for highest overall excellence ($2,250)
2018 Louis Ulloth Scholarship for most significant leadership ($2,250)
2018 Putnam Competition highest scorer
2017-2018 Putnam Competition team member

SELECTED PUBLICATIONS

[1] J. Duan, M. M. Malakhov, J. J. Pellett, I. S. Phadke, J. Barber, and J. C. Blackwood, "Management efficacy in a spatially dynamic model of white-nose syndrome," *Under review*, Sep. 2019.

[2] M. M. Malakhov, B. Fitzpatrick, R. A. Lopez, A. Shivkumar, A. Do, D. Q. Eckhardt, and R. S. Martin, "Attractor reconstruction and empirical parameter inference for hydrogen-oxygen chemistry," U.S. Air Force, Internal Report, Aug. 2019.

[3] M. M. Malakhov, "Managing white-nose syndrome in bats: A spatially dynamic modelling approach," Honors Thesis, Andrews University, Apr. 2019.