Sashko Horokh

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EDUCATION

Massachusetts Institute of Technology (MIT) Cambridge, MA
B. S. in Mathematics and Economics (GPA: 4.7/5.0) Graduation: May 2025
Relevant coursework:
Mathematics: 18.A34 Putnam Problem Solving; Probability Theory; Algebraic Combinatorics; Algebra; Real Analysis; Multivariable Calculus; Statistics; Functional Analysis; Differential Equations.
Economics: Microeconomics; Microeconomics theory and Public Policy; Macroeconomics; Game Theory; Mathematical Modeling; Econometrics; Advanced Econometrics; Why markets fail; Market design.
Communication: Writing for Bilingual Students; Public Speaking; Rhetorics; Voice and Speech.

Skills: Stata, R, C++, LaTeX, causal inference, data analysis, Machine Learning, teamwork, individual work, fast learner, public policy, public speaking, communication, Ukrainian language.

RESEARCH EXPERIENCE

Game Theory Model of Informational War
Individual research, summer 2024; research advisor: Prof. Muhamet Yildiz
- developed a model designed to analyze strategic interaction between two states competing for international audience's support through events reporting;
- provided an analysis of theory-based equilibrium states and their potential applications;
- authored an academic paper on the topic.

Debiased Machine Learning for Economics
Individual research, June 2023 - May 2024; research advisor: Prof. Whitney Newey
- estimated the error caused by the penalty term in lasso regressions;
- summarized and modeled strategies and algorithms to estimate and decrease the error;
- implemented computer-based simulations using R programming language;
- conducted a comparative analysis of data estimation algorithms', their errors and efficiency.

Funding for Ukraine's Recovery
Collaborative team research, summer 2023; research advisor: Prof. Simon Johnson
- collected and analyzed existing proposals regarding funding for Ukraine's recovery;
- assessed risks and benefits of suggested approaches;
- estimated, mapped and summarized existing resources;
- recommended economical, legal, and administrative frameworks for funding Ukraine's recovery.

CONFERENCES, TEACHING, AND RECOGNITION

Mathematical Olympiads Awards: Gold (2019) and Silver (2018) at European Girls Mathematical Olympiad (EGMO), Bronze at Romanian Masters in Mathematics (RMM) 2019, Gold at Middle European Mathematical Olympiad (MEMO) 2018, member of Ukrainian IMO preparation team 2017-2019, Team Bronze at International Tournament of Young Mathematicians 2019.

Jury member at Mathematical Olympiads:
- Romanian Masters in Mathematics 2020: Ukrainian Team Deputy Leader & a jury member;
- European Mathematical Cup 2020, Ukraine IMO team selections 2021-2023, Ukrainian National Math Olympiad 2023, Kyiv National Olympiad Selections 2024, Deputy Chief Jury at City Math Olympiad 2020 and 2021.

Mentor & Teacher at Ukraine Leadership and Technology Academy 2023 and 2024
- create and teach introductory Economics and Strategy curriculums to high school students during 2-week intensive summer camps; mentor students' project development.

Math club teaching: "Tsyfra" Math Club, group Ferma (mostly teaching National Olympiad winners), Plons`kyy Math Club (tutor Kyiv City team and Ukrainian IMO preparation team), Kvanta Math Club
- created and taught introductory to advanced math olympiad curriculums to middle and high school students for over 5 years starting in my 9th grade of school (2017-2021).

Invited speaker: "Ukraine at war and after it" at **Wyoming for Ukraine:** A Virtual Forum Featuring Prof. Serhii Plokhy, June 2, 2024

Invited panel speaker at **Social Enterprise Conference:** Youth's role in addressing society's most urgent problems**,** Harvard Business School and Harvard Kennedy School, 4-5 March, 2023

Invited speaker: "Superheroes" at **TEDxMIT: Superpowers**, MIT, April 20, 2022.