Emil Ryd

I am a physics student with a deep interest in machine learning and international development. Outside of this I enjoy reading classics and playing tennis.

Education

University of Oxford, Physics, MPhys (2023-2027)
Undergraduate student at New College, University of Oxford

UWC Red Cross Nordic, IB Diploma (2021-23)
Final IB grades: 42 /45

Research

Airplane Boarding Operations Research
Supervised by Prof. Jason Steffen at UNLV, a pioneer of the field, I am the main author of a paper investigating boarding methods. I built the agent-based model used for simulating boarding in the paper. Paper submitted to the European Journal of Operational Research.

Stochastic Resonance in Climate Change, Max Planck Institute
Together with Prof. Dr. Holger Kantz at the Max Planck Institute for the Physics of Complex Systems, I have conducted research into stochastic resonance phenomena in climate change. I built a model and applied geological datasets to it. Paper submitted to Phys Rev E.

COVID-19 Network Modeling, World Health Network
As a collaborator at the New England Complex Systems Institute, I am currently developing an agent-based network model for analyzing the the impact of local envionrmental variables on the spread of COVID-19, together with Dr. Leila Hedayatifar.

Neural ODEs for Financial Models
Currently working together with Dr. Joel Dyer at the University of Oxford, training neural ODEs as surrogate models for economic and financial agent-based models, to be used for parameter calibration.

Activities

Vaccess (2020-): I have programmed and launched an app on the App Store in Sweden, which enables users to catalogue vaccinations they've taken and be notified about future vaccinations.

LEAF (2021-2023): I was CEO of this registered environmental NGO of 25 other student members. Raised money by organizing workshops on environmental challenges and world development for young kids. Coordinated the renovation of a primary school outside Accra, Ghana.

Water Supply Forecasting ML Competition (2023): I was selected to be part of a team from the University of Oxford particiating in the Water Supply Forecast Rodeo, a competition hosted by the U.S. Bureau of Reclamation to help develop their forecasting models. We developed an LSTM model for prediction, making use of both geospatial and temporal data.

Competitions

Winner, Norsk Fysikkolympiade (Norwegian Physics Olympiad) 2021-2022: 1st place out of 755 participants, qualified for Norway's IPhO team 2022.

Silver Medal, International Physics Olympiad (IPhO) 2023: Out of 398 participants from 84 countries, finished in the top 75th percentile.

Bronze Medal, European Physics Olympiad (EuPhO) 2023: Out of 181 participants, I finished in top 60th percentile, representing Sweden..

Bronze Medal, Nordic Baltic Physics Olympiad (NBPhO) 2023: Represented Sweden, finished in the top third.

Other Awards

RCNMUN 22': Best Delegate in Crisis Committee, Best Draft Resolution

Harvard Undergraduate Economics Competition 2022: Set up three teams at my school, led one to quarterfinals.

Skills

Programming

Python
Java
C++

Other

Machine learning
Computational modeling
Numerical analysis