Victoria Valeeva

Education

University of Toronto 2021 – 2025
Honours Bachelor of Science – Applied Statistics *Canada*

Experience

Research Assistant May 2023 — August 2023
Under supervision of Dr. Duncan Dauvergne *Toronto, Canada*
- Studying and conceptualizing new stochastic epidemic models
- Proving results for multi-particle diffusion limited aggregation models

Teaching Assistant: MAT135/136 September 2022 — Present
University of Toronto *Mississauga, Canada*
- Lecturing, conducting office hours, preparing class materials/tutorials/tests/exams, grading assignments/exams.

Research Assistant May 2021 — Present
Rauscher Lab, University of Toronto *Mississauga, Canada*
- Conceptualizing and testing dimensionality reduction methods for protein simulation data to increase interpretability
- Performing quantitative and qualitative analyses of a dimensionality reduction method based on variational autoencoders
- Building Markov models of protein simulations to discover the underlying dynamics
- Utilizing the University's high-performance computing resources (Niagara and MIST) to train neural networks and run extensive protein simulations

3D Artist June 2020 – July 2020
SoyuzKhimPromProekt
- Produced high-quality renders of 5 civil engineering projects at the growing petrochemical facility
- Created a software add-on for Blender 3D in Python to automate building generation
- Utilized Blender API for fast modeling of paneled surfaces, reducing production time by 35%
- Resolved a software migration issue to produce renders by leveraging the properties of FBX models

Projects

Research on Numerical Methods January 2020 – April 2020
- Conducted comparative analysis of Euler, Euler-Richardson, Verlet, and Runge-Kutta methods, helping to determine the most suitable method for scientific simulation problems
- Developed simulations of physical phenomena in Java to attain quantifiable properties of the methods
- Applied linear regression to approximate relative error functions

Talks, Posters, and Publications

Functional Protein Dynamics in a Crystal - Klyshko et al.bioRxiv

UToronto Mississauga SURF 2022 - Decoding Protein Dynamics with Machine Learning

UToronto Mississauga Smarti Gras 2021 - Searching for Conformational States in the Dynamics of Protein Crystals

Awards

University of Toronto Excellence Award 2023
- Award by University of Toronto to support supervised undergraduate research; Value: 7,500$
- Supervised by Dr. Duncan Dauvergne

UTM Undergraduate Research Grant 2022
- Grant by University of Toronto Mississauga to support undergraduate research; Value: 500$
- Supervised by Dr. Sarah Rauscher

University of Toronto International Scholar 2021
- Entrance scholarship for undergraduate studies; Value: 180,000$

Finals of International PhysTech Olympiad in Physics 2021
- prize-winner, top 1%, over 12 thousand participants worldwide