

# Curriculum Vitae

Andrew Gritsevskiy

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Citizenship: United States

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## Education

2019 – Dec. 2022 (expected)	University of Toronto Mathematics, computer science, stats, biology
2018 – 2019	University of California, Los Angeles Mathematics and computer science
2018	Canada/USA Mathcamp
2017 – 2018	Harvard University Extension Mathematics
2014 – 2018	Lexington High School

## Research Experience

- 2020—pres.    Research assistant  
Vector Institute  
I am working on distance-based planning for reinforcement learning, co-supervised by Silviu Pitis and Harris Chan in Prof. Jimmy Ba's lab.
- 2022—pres.    Research Assistant  
The Hospital for Sick Children  
I am a Data Sciences Institute Scholar at the Josselyn Frankland Lab, where I am investigating how the brain encodes memory.
- 2021            Research Fellow  
Institute for Advanced Research in Artificial Intelligence  
Worked with Dr. Michael Kopp on reinforcement learning for Ramsey Theory.
- 2020—2021    UofT iGEM team  
Generative modelling track
- 2019            Research lead  
UCLA iGEM team  
Worked with Mark Arbing at the Protein Expression Lab at the UCLA-DOE Institute and with Todd Yeates at the Yeates Lab.
- 2017—2018    Student researcher  
MIT Media Lab  
Worked with Maksym Korablyov and Dr. Joseph Jacobson on low-data transfer learning using capsule networks.
- 2016—2018    Student researcher  
MIT Affinity project  
Worked with Maksym Korablyov, Dr. Joseph Jacobson, Kfir Schreiber, Isaac Wolverson, Aditi Harini, and Manvitha Ponapatti on developing a deep learning library for molecular geometry.

- 2016—2017 Student researcher  
Biomedical Cybernetics Laboratory, Harvard University  
Conducted research on predicting biological properties of genomes with deep learning with Adithya Vellal and Dr. Gil Alterovitz
- 2016—2018 Student researcher  
MIT PRIMES program
- 2015 Student researcher  
Draper laboratory  
Created personalized biosurveillance software with Albert Gerovitch and Gregory Barboy at Dr. Natasha Markuzon's lab.

## Papers

1. Krenn, M., Buffoni, L., Coutinho, B., Eppel, S., Foster, J. G., **Gritsevskiy, A.**, Lee, H., Lu, Y., Moutinho, J., Sanjabi, M., Sonthalia, R., Tran, N. M., Valente, F., Xie, Y., Yu, R., Kopp, M. (2022) Predicting the Future of AI with AI: High-Quality link prediction in an exponentially growing knowledge network. Preprint at arXiv:2210.00881
2. **Gritsevskiy, A.** (2022) Control Theory and Efficient Heuristic Reinforcement Learning. *Submitted as part of MAT495 research course*
3. **Gritsevskiy, A.** and Korablyov, M. (2018) Capsule networks for low-data transfer learning. Preprint at arXiv:1804.10172
4. **Gritsevskiy, A.** (2017) Towards Generative Drug Discovery: Metric Learning using Variational Autoencoders. Preprint at math.mit.edu.
5. **Gritsevskiy, A.** and Vellal, A. (2016) Development and Biological Analysis of a Neural Network Based Genomic Compression System. Preprint at math.mit.edu.
6. Gerovitch, A., **Gritsevskiy, A.**, and Barboy, G. (2015) Mobile Health Surveillance: The Development of Software Tools for Monitoring the Spread of Disease. Preprint at math.mit.edu.

## Teaching & Supervision

2022	Taught a course on quantum algorithms at Camp Cape Cod
2022	MIT PRIMES Mentor in Computer Science, supervising a project on deep learning for kinematics
2022	Leading and facilitating an introductory effective altruism fellowship at the University of Toronto
2020	Taught a course on neural networks and deep learning at Camp Cape Cod
2019	Taught two one-day courses on deep learning and the curse of dimensionality at UCLA Splash
2018	Co-taught a class on the curse of dimensionality with Michelle Hung at Canada/USA Mathcamp
2018	Taught a three-day class on neural networks for visual recognition, inspired by Stanford's CS231n
2017	Taught two one-day classes on deep learning and molecular orbital theory at Lexington Splash

## Talks

2022, CCC	The History of Bananas
2020, CC	Distance-based Planning in Reinforcement Learning
2019, UCLA	Lie Groups in Physics
2018, MIT	Capsule Networks for Low-Data Transfer Learning
2017, MIT	Deep Learning Techniques for the Determination of Cross-Species Structural Gene Expression

## Awards and Recognition

2022	Eliciting Latent Knowledge Competition – First Place (\$15000 prize, with Derik Kauffman and Joe Cavanagh)
2022	Inverse Scaling Prize – Third Prize (\$5000 prize, with Derik Kauffman and Joe Cavanagh)
2022	Nominated for Rhodes Scholarship for Canada
2022	Data Sciences Institute SUDS Research Scholar (\$8000 award)
2019	Best Overall Hack—UCLA Hack On The Hill
2019	First place, UCLA algorithms competition
2018	National AP Scholar
2017	National Merit Scholarship Semifinalist
2017	DOE National Science Bowl Wildcard Award
2017	Perfect SAT score in chemistry, molecular biology, and mathematics
2017	United States Computing Olympiad—Gold level
2016	Chinese-American Biomedical Association High School Research Award
2016	Musical compositions chosen for performance in Boston, MA and St. Petersburg, Russia

## Expository writing

1. Gritsevskiy, A. (2020) The Language of Nature.
2. Hung, M. and Gritsevskiy, A. (2018) The Curse of Dimensionality.

## Relevant Projects

I have worked on dozens of artificial intelligence, reinforcement learning, and robotics projects. Details available upon request.

## Industry experience

2019      Developed blind-spot vehicle radars at Veoneer

## Coursework

Neural Networks and Deep Learning, Complex Analysis, Computer Graphics, Neurogenomics, Observational Astronomy, Topics in Linear Operator Theory, Topology, Graph Theory, Topics in Classical Geometries, Chaos Fractals and Dynamics, Computer Organization, [Graduate] Quantum Algorithms, Enriched Data Structures and Analysis, Software Tools and Systems Programming, UCLA Directed Reading program—project on representations of Lie Groups, Software Design, Probability and Statistics, Artificial Intelligence, Groups, Rings, and Fields, Drug delivery and controlled drug release, [Graduate] Advanced Methods in Bioinformatics, English composition, Real Analysis [Honours], Molecular biology, Introduction to computer science I&II, Algebra [Honours], Linear Algebra [Honours], Elementary Swedish, Introduction to Linguistics, Data Visualization, Statistical Theory, Methods of Data Analysis, Topics in Pre-1800 British Literature, Conservation of Canada's Forests

## Miscellaneous

Lots of experience in writing music, dramatic performance, musical performance, sports (tennis, biking, &c.), Russian literature, writing puzzles, organizing math tournaments and other events, hiking, stop-motion animation. I speak Russian and English natively, German and Mandarin proficiently.

## Standardized testing

800/800	SAT Math Level II
800/800	SAT Chemistry
800/800	SAT Molecular biology
770/800	SAT United States History
5/5	AP Physics C: Mechanics
5/5	AP Physics C: Electromagnetism
5/5	AP Macroeconomics
5/5	AP Microeconomics
5/5	AP Calculus BC
5/5	AP Computer Science A
5/5	AP Biology
5/5	AP Chemistry
5/5	AP World History
5/5	AP United States History
1570/1600	SAT