

NOGA AHARONY

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EDUCATION

- In progress **Doctor of Philosophy**, Systems Biology, *Columbia University in the City of New York*
Courses: Intro to Machine Learning, Computational Genomics, Non-Euclidean Embedding in Biology
Advisor: Tal Korem, PhD
- 2021 **Master of Science**, Biology, *Technion – Israel Institute of Technology* Defense Grade: 95/100
Thesis: Rapid Gene Content Alteration in Recurring Infections CGPA: 94.1/100
Advisor: Roy Kishony, PhD
- 2019 **Bachelor of Science**, Honours Neuroscience, *McGill University* CGPA: 3.95/4.0
Awards: First Class Honours, Dean's Honours List, Dean's Multidisciplinary Research List

RESEARCH EXPERIENCE

- 2022 **Mohammed AlQuraishi Lab**, *Columbia University, Program of Mathematical Genomics*
Developing a proteome-wide model for antimicrobial resistance prediction
- 2022 **Itsik Pe'er Lab**, *Columbia University, Department of Computer Science*
Developed a neural embedding model in hyperbolic spaces to better predict small proteins
- 2021 **Tal Korem Lab**, *Columbia University, Program of Mathematical Genomics*
Developed an embedding-based method to correlate graph representations of metagenomes from the human microbiome with outcomes
- 2019-2021 **Roy Kishony Lab**, *Technion – Israel Institute of Technology, Department of Biology*
Constructed a computational pipeline to identify mobile genetic elements in recurring infections
Designed experiments unraveling eco-evolutionary dynamics of microbial communities
- 2018-2019 **Amine Kamen Lab**, *McGill University, Department of Bioengineering*
Designed and manufactured adeno-associated viruses carrying Cas9 for improved CAR-T cell engineering
- 2018 **Center for Health Security**, *Johns Hopkins University, School of Public Health*
Informed national guidelines on sequence and customer screening practices among DNA providers
Studied the safety, innovation, and community norms in the DIY Biology community
- 2017-2018 **Jonathan Kimmelman Lab**, *McGill University, Biomedical Ethics Unit*
Applied machine learning to analyze aspects of clinical trials design that influences forecasts of outcomes
Contributed to a meta-analysis
- 2017 **Edward Ruthazer Lab**, *McGill University, Montreal Neurological Institute*
Electroporated and imaged tadpoles to study structural plasticity in the developing visual system
- 2016-2017 **Rafael Najmanovich Lab**, *University of Montreal, Department of Pharmacology and Physiology*
Developed software characterizing protein interfaces based on surrounding force fields
Modelled biophysical features of *C. difficile* germination protease to identify candidate inhibiting ligands

PUBLICATIONS

- 2022 Myers A, Utpala S, Talbar S, Sanborn S, Shewmake C, Donnat C, Mathe J, Lupo U, Sonthalia R, Cui X, Szwagier T, Pignet A, Bergsson A, Hauberg S, Nielson D, Sommer S, Klindt D, Hermansen E, Vaupel M, Dunn B, Xiong J, **Aharony N**, Pe'er I, Ambellan F, Hanik M, Nava-Yazdani E, von Tycowicz C, Miolane N. ICLR 2022 Challenge for Computational Geometry & Topology: Design and Results. *arXiv*.

- 2022 Liang C, Wagstaff J, Schmit V, **Aharony N**, Manheim D. Managing the Transition to Widespread Metagenomic Monitoring: Policy Considerations for Future Biosurveillance. *Under Review*.
- 2021 Milman O*, Yelin I*, **Aharony N**, Katz R, Herzl E, Ben-Tov A, Kuint J, Gazit S, Chodick G, Patalon T, Kishony R. Community-level evidence for SARS-CoV-2 vaccine protection of unvaccinated individuals. *Nature Medicine*.
- 2020 Yelin I*, **Aharony N***, Shaer-Tamar E*, Argoetti A*, Messer E, Berenbaum D, Shafran E, Kuzil A, Gandali N, Hashimshony T, Mandel-Gutfreund Y, Halberthal M, Geffen Y, Szwarcwort-Cohen M, Kishony R. Evaluation of COVID-19 RT-qPCR test in multi-sample pools. *Clinical Infectious Diseases*.
- 2019 Moço PD, **Aharony N**, Kamen A. Adeno-Associated Viral Vectors for Homology-Directed Generation of CAR-T cells. *Biotechnology Journal*.

POSTERS

- 2021 **Aharony N**, Kishony R. Rapid Alteration in Genetic Content Upon Recurring Infection. *EMBL Symposium: New Approaches and Concepts in Microbiology*.
- 2018 **Aharony N**, G Gronvall. How Secure is the Gene Synthesis Industry? *Biological Weapons Convention: Meeting of Experts*.

AWARDS

- 2022 **Effective Altruism Funds** PhD Support
- 2021 **Open Philanthropy** Early-Career Funding
- 2020 **Miriam and Aaron Gutwirth** Memorial Fellowship for Excellence in Research
- 2019 **Leonard and Diane Sherman** Interdisciplinary Graduate School Fellowship
- 2017,2018 **McGill University** Faculty of Science Scholarship
- 2018 **Open Philanthropy** Early-Career Funding for Global Biological Risks
- 2017 **CIHR** Undergraduate Research Award in Computational Biology
- 2016 **NSERC** Undergraduate Student Research Award
- 2016 **FRQNT** Top-Up to NSERC Undergraduate Student Research Award
- 2016 **PROTEO** Undergraduate Summer Studentship (Declined)
- 2014 **Grossman-Klein** Teen Leadership Award

TEACHING EXPERIENCE

- Spring 2018 **Molecular Mechanisms of Cell Function (BIOC212)**, *McGill University*
Created problem sets for each class and in preparation for exams
- Fall 2017 **Introduction to Neuroscience 1 (NSCI200)**, *McGill University*
Created problem sets and conducted bi-weekly review sessions
- Fall 2017 **Molecular Biology (BIOL200)**, *McGill University*
Held office hours to answer student questions about the class
- Fall 2017 **Introductory Physics: Mechanics (PHYS101)**, *McGill University*
Circulated the class during the lecture to clarify material and help with problem sets
- Spring 2017 **Introductory Physics: Electromagnetism (PHYS102)**, *McGill University*

Circulated the class during the lecture to clarify material and help with problem sets

Fall 2016 **Introductory Physics: Mechanics (PHYS101)**, *McGill University*

Held office hours to answer student questions and help with homework assignments

SKILLS

Programming Experienced with **Python** and **MATLAB**, familiar with **C/C++**, **R**, **Java**, **PHP**, **Lisp** and **Perl**

Languages Hebrew (native), English (near-native), French (novice)