

DANYA GORDIN

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SUMMARY

Interdisciplinary data scientist with over 4 years of experience specializing in deep learning, mathematical modeling, and gene regulatory dynamics. My scientific interests include systems biology, computational medicine, model development, network inference/refinement, reinforcement learning, natural language processing, computer vision, robotics, and blockchain.

RESEARCH EXPERIENCE

The Jackson Laboratory

Bar Harbor

Post-baccalaureate Intern for Dr. Greg Cox

Nov 2017 to Dec 2018

- Formal scientist training program that developed my technical skills as a working researcher in both wet and dry lab settings.
- Characterized novel mouse models for two particular neuromuscular disorders, Spinal Muscular Atrophy with Respiratory Distress (SMARD) and Charcot-Marie-Tooth Disease Type 2S (CMT2S), using CRISPR/Cas9-induced mutations in the gene IGHMBP2.
- Demonstrated that a neuron specific enolase transgene (TgNSE) rescued the neuropathy in both the SMARD and CMT2S models.

Post-baccalaureate Intern for Dr. Mingyang Lu

Jan 2019 to Sept 2020

- Performed RNA-Seq quality control and analysis, followed by gene set enrichment, to identify differentially expressed genes as well as functionally enriched pathways for collaborators.
- Developed an interactive Shiny web-app ([GeneEx](#)) that employs an ODE-based mathematical modeling approach to simulate, visualize, and analyze gene regulatory circuits.
- Designed a novel transcription factor (TF) network construction algorithm that infers TF activity from their target's expression.

Northeastern University Bioengineering Department

Boston

Research Technician for Dr. Mingyang Lu

Sept 2020 to Present

- Building a simulator of single-cell RNA sequencing data that can optimize model parameters to recapitulate experimental data.

WORK EXPERIENCE

NOVA | PBS

WGBH Boston

Editorial Intern/Independent Contractor

Oct 2015 to March 2017

- Major responsibilities included editing/fact-checking scripts, scientific consulting, interviewing scientists, and researching exploratory show proposals.
- Credited as a researcher for the following programs: *Making North America: Human*, *Iceman Reborn*, *Secrets of the Sky Tombs*.

TECHNICAL SKILLS

- **Animal Handling:** Mouse husbandry/Colony management, IV/IP/IM/SC injections, Perfusion, Necropsy
- **Cell and Molecular Biology:** PCR and RT/qPCR, Primer design, Electrophoresis, Sanger Sequencing analysis (Sequencher), Western Blotting, Pull-down assays, Enzymatic activity assays, Plasmid Transformations, AAV Transduction, Cloning, CRISPR, Flow Cytometry (FACS) analysis, Cell culture, Confocal microscopy, Cell imaging and analysis (ImageJ)
- **Chemistry:** Calorimetry, Distillation, Titration, Spectroscopy (IR/UV-Vis/MS), Chromatography (GC/TLC), Multi-step synthesis
- **Bioinformatics:** Analysis of Bulk/Single-Cell RNA-seq, ChIP-seq, and ATAC-seq data, eQTL Analysis, Multivariate statistical testing
- **Computational Biology:** Math Modeling (Boolean, ODE, Bayesian), Network Construction, Kinetic Parameters Optimization
- **Programming:** Data Science (R, Python, Bash, Excel), Web Dev (HTML, CSS, JavaScript, LaTeX), Software Dev (C++)

PUBLICATIONS AND FUNDED PROJECTS

- Kohar, V., **Gordin, D.**, Katebi, A., Levine, H., Onuchic, J. N., Lu, M. (2020). [Gene Circuit Explorer \(GeneEx\): an interactive web-app for visualizing, simulating and analyzing gene regulatory circuits](#). *Bioinformatics*
- Su, K., Kohar, V., Katebi, A., **Gordin, D.**, Karuturi, K., Li, Sheng., Lu, M. [NetAct: a computational platform to construct core transcription factor regulatory networks using gene activity](#) *Genome Biology*
- Wells, J., Shi, J., **Gordin, D.**, Li, Q., Memishian, W., Lu, M., Ren, G., Bult, C., *Dynamics of the immune microenvironment during lung tumorigenesis* (JAX Cancer Center Pilot Project, ongoing)
- **Gordin, D.**, Hicks, A., Cox, G., *IGHMBP2 levels a driver of phenotypic diversity in mouse models of SMARD and CMT2S* (ongoing)

LEADERSHIP AND VOLUNTEERING

- 2019: Developed and taught a workshop on systems biology for the 2019 Jackson Laboratory High School Open House
- 2017-2019: Tour guide at The Jackson Laboratory, Judge for the Maine State Science Fair
- 2020-2021: Live shadowing at MDI Hospital, Virtual shadowing and volunteering with the Heal Clinical Education Network
- 2020-2021: Volunteer at Open Table MDI, Bar Harbor Vaccine Clinic, MDI Hospital Integrative Care Team, Habitat for Humanity
- 2022-2023: TA for CS5100-Foundations of AI, TEALS volunteer, Khoury Master's Student Council (KMSC) E-board member

EDUCATION

- MS in Artificial Intelligence, summa cum laude, Northeastern University, 2023 (GPA: 4.0, Specialization: Deep Learning)
- BS in Chemistry, University of Massachusetts, 2017

OTHER

Interests Music (Piano, Ukelele, Vocals, GarageBand), Ninja Warrior, 3D Printing, Gardening, Cooking, Board Games, Hackathons
Languages English: Fluent. Russian: native. Spanish: conversational.