Ron Shprints

✉ ronsh@mit.edu • in • ○ • 🌐

Education

Massachusetts Institute of Technology · **Cambridge, MA** · **2021 - 2025**

B.S. in Electrical Engineering and Computer Science, and Mathematics, GPA 5.0/5.0

Selected Coursework: Machine Learning, Advanced NLP, Sensorimotor Learning, Statistics, Design and Analysis of Algorithms, Software Construction, Abstract Algebra

* Graduate level classes

Experience

He Vision Group · **Cambridge, MA (MIT)** · **Feb 2024 - Present**

- Studying and developing the few shot capabilities of conditional generative models with Professor Kaiming He and Dr. Tianhong Li.

Bates Group · **Cambridge, MA (MIT)** · **May 2024 - Present**

- Developing a novel generative model for protein sequences with Professor Stephen Bates and Charlie Cowen-Breen.
- Developing a new statistical protocol for rare event sampling using predictions.

Coley Group · **Cambridge, MA (MIT)** · **May 2022 - May 2024**

- Analyzed a representation learning method that captures the reactivity of molecules using contrastive learning on substrate scopes. Pre-print.
- Developed a novel classifier for class-imbalanced datasets, which was used to predict the scalability and reproducibility of chemical reactions. Conducted a mechanistic interpretability study on the model's predictions.
- Developed an SE3-equivariant model which utilizes symmetry to predict molecular properties from their wave functions.
- Developed a python API to achieve programmable control over the Tecan Liquid Handler robot. Implemented optimization and scheduling algorithms to automate laboratory experiments.

Jensen Group · **Cambridge, MA (MIT)** · **Sep 2021 - Jun 2023**

- Developed a machine learning model for the prediction of electrochemically driven reactions. Used DFT calculations to discover novel chemical transformations using RDKit and SKLearn. Presented my work in the 2022 MLPDS consortium. Publication.
- Developed a machine learning model for the discovery of novel palladium catalysts, reaction condition recommendation, and yield prediction using RDKit and Pytorch.

Professional Service

Reviewer

- Reviewer for the 2023 NeurIPS AI for Science workshop.
- Reviewer for the 2024 ICML AI for Science workshop.

Machine Learning for Molecular Design, Instructor · **Cambridge, MA (MIT)** · **Jan 2024 - Feb 2024**

- Designed the course syllabus and created original tutorials (in collaboration with Wenhao Gao). Delivered several 2-hour lectures on both theoretical and practical aspects of machine learning focusing on molecular design. Course Website.

Fundamentals of Statistics (18.650), Undergraduate Assistant
Cambridge, MA (MIT)
Sep 2023 - Dec 2023

- Worked directly with Professor Philipe Rigollet to help with the course material. Held office hours and wrote original problems for the problem sets.

International Chemistry Olympiad (IChO) Mentor
Technion University, Israel
Oct 2020 - Aug 2021

- Served as the head mentor for inorganic chemistry. Prepared the syllabus for the preparation of the national team and delivered monthly lectures.
- Lectured on advanced organic chemistry and biochemistry.
- Member of the academic committee of the Israeli Chemistry Olympiad. Composed problems for the final exams of the national Olympiad.

Skills and Interests

Interests: Machine Learning, Computer Vision, AI for Science

Programming Languages: Python, TypeScript, C++, HTML/CSS

Languages: English (Native), Hebrew (Native), Russian (Intermediate), Chinese (Conversational)

Selected Awards

- Outstanding Associate Advisor of the Year Award (for advising first-year undergraduate students)
- MIT EECS — Takeda Undergraduate Research and Innovation Scholar
- International Chemistry Olympiad (IChO): Silver Medal (2020), Bronze Medal (2019)