

# Shaurya Seth

sseth@ualberta.ca | (825) 461-6526 | shauryaseth.com

## EDUCATION

### UNIVERSITY OF ALBERTA

#### BSc IN PHYSICS

with Economics Minor

Sep 2018 – Apr 2023

GPA: 3.2 / 4.0

## LINKS

GitHub:// [shauresh](#)

LinkedIn:// [shauresh](#)

Medium:// [shauresh](#)

## COURSEWORK

### GRADUATE

Reinforcement Learning (Rich Sutton)

### UNDERGRADUATE

Reinforcement Learning (Martha White)

Classical Mechanics

Quantum Mechanics

General Relativity

Particle Physics (Roger Moore)

Electromagnetism

Thermodynamics

Linear Algebra

Differential Equations

Industrial Organization

Energy Economics

## SKILLS

### PROGRAMMING

Python •  $\text{\LaTeX}$

PyTorch • Scikit • OpenCV

NumPy • Pandas • Matplotlib

### SOFTWARES

Microsoft Excel • Illustrator

Solidworks

### KNOWLEDGE

Data Science • Visualization

Transformers • LLMs

Deep RL • MDPs

## EXPERIENCE

### 48HOUR DISCOVERY

#### MACHINE LEARNING ENGINEER

Apr 2023 – Present | Edmonton, AB

Using transformers for drug discovery.

- Training regression transformer encoder models on large public datasets.
- Fine-tuning base model on proprietary data.
- Ranking potential drug candidates to significantly reduce experimental costs.

## RESEARCH

### NOBES RESEARCH GROUP

Apr 2022 – Jul 2022 | Edmonton, AB

Worked with **David Nobes** to analyze fuel cores for nuclear **microreactors**.

- Reproduced thermal analysis of the fuel core of NASA's Kilopower microreactor.

### RLAI LAB

Apr 2021 – Sep 2021 | Edmonton, AB

Worked with **Martha White** and **Adam White** to automate a **water treatment plant** using reinforcement learning.

- Created a visualizer to understand sensor readings from the plant.
- Compared function approximators and RL algorithms in the prediction setting.
- Used a classical approach that outperformed Deep RL and became the new baseline for the project.

### DERDA RESEARCH GROUP

Apr 2019 – Jun 2021 | Edmonton, AB

Worked with **Ratmir Derda** and **Russ Greiner** to create **GlyNet**, a deep learning model that predicts protein-carbohydrate interactions.

- Scraped and compiled scattered public data into tabular form.
- Designed a fingerprint based method for encoding complex carbohydrates.
- Trained and deployed a deep learning model that reduces experimental costs.

## PROJECTS

**pyramidify** - Plotting camera poses in 3D for creating NeRFs.

**phage-counting** - Counting phages by detecting plaques using image classification.

**article-networks** - Visualizing connections between PubMed research papers.

**glycan-draw** - A tool for drawing pixelated glycans for image recognition.

## AWARDS

2021 Alberta Innovates Summer Research Studentship

2021 GlycoNet Summer Award for Undergraduate Students

2020 Undergraduate Research Initiative Stipend

## PUBLICATIONS

[1] GlyNet: a multi-task neural network for predicting protein-glycan interactions. *Royal Society of Chemistry*. 2022.

[2] Genetically encoded multivalent liquid glycan array displayed on M13 bacteriophage. *Nature Chemical Biology*. 2021.