

Luke Green

(435) 652-1759 • lukegreen109@gmail.com

EDUCATION

Bachelor of Science, Mathematics

Brigham Young University

Apr 2024

Provo, UT

- GPA 3.95
- Full Tuition Scholarship
- Dean's List
- 3x Academic Award of Excellence (Linear Algebra, Math of Data Science and Abstract Algebra)

Master of Science, Mathematics

Brigham Young University

Apr 2026

Provo, UT

- GPA 4.0
- Fully funded teaching assistant/research assistant position
- Relevant graduate level coursework:

Measure Theoretic Probability
Mathematics of Deep Learning
Bayesian Inference

Numerical Linear Algebra
Matrix Analysis
Functional Analysis

Advanced Deep Learning
Abstract Algebra

RESEARCH EXPERIENCE

Online Batch Selection via Active Learning

Advisor: Prof. Kevin Miller

Aug 2024-Present

Brigham Young University

- Created a single code base for the state-of-the-art online batch selection methods using Pytorch
- Implemented several new batch selection methods/loss reweighting methods and compared performance in classification tasks across multiple datasets
- <https://github.com/lukegreen109/Online-Batch-Selection>

Non-Backtracking Random Walks

Advisor: Prof. Mark Kempton

Feb 2023-Aug 2024

Brigham Young University

- Wrote Python code using NetworkX to generate and test millions of graphs
- Discovered two processes for constructing cospectral pairs of graphs with respect to the Non-Backtracking Adjacency Matrix

Learning to Attribute Products to Prices in Retail Shelf Images

- Implemented deep hough transform heuristic and vision language model baselines using Pytorch
- <https://github.com/delicious-ai/price-net>

Jun 2025-Aug 2025

PUBLICATIONS AND PRESENTATIONS

- Spencer Young, Preston Jenkins, Kevin Miller, and Porter Jenkins. 2025. *Learning to Attribute Products to Prices in Retail Shelf Images*. Submitted to SIGKDD 2025.
- Construction and Properties of Cospectral Non-Backtracking Matrices of Graphs. Joint Mathematical Meetings, January 2024.
- Construction and Properties of Cospectral Non-Backtracking Matrices of Graphs. BYU Student Research Conference, February 2024.

RESEARCH INTERESTS

Machine Learning
Randomized Methods

Dimensionality Reduction
Sampling Methods

Active Learning
Graph Based Methods

PROJECTS

- Implemented Prioritized Experience Replay Buffer and compared performance to various epsilon-greedy schedules on the cartpole problem <https://arxiv.org/abs/2511.03670>
- Evaluated Relative Trace Error of Randomly Pivoted Partial Cholesky on a variety of kernel matrices with an ablation study over the power
- Implemented a Neural Radiance Field to render 3D scenes with few 2D images

TEACHING EXPERIENCE

Instructor (Spring 2025)	Calculus 2
<ul style="list-style-type: none">▪ 17 students - all students passed▪ Taught 10 hours of lecture per week▪ Wrote and graded all exams with another masters student	
Recitation Section Instructor (Fall 2024)	Calculus 1
<ul style="list-style-type: none">▪ 68 students▪ Taught 4 hours of lecture per week▪ Graded all exams	
Recitation Section Instructor (Winter 2024)	Calculus 1
<ul style="list-style-type: none">▪ 49 students▪ Taught 4 hours of lecture per week▪ Graded all exams	
Teaching Assistant (Fall 2025)	Algorithms and Optimization
<ul style="list-style-type: none">▪ 49 students▪ Graded all rigorous proofs and configured autograders▪ Held 3 hours of office hours per week	
Utah Tech University Math Lab Tutor (Fall 2024)	
<ul style="list-style-type: none">▪ 10-20 hours per week while attending high school▪ Tutored college algebra, statistics, and calculus	
ACT/SAT Personal Tutor (2019-2024)	
<ul style="list-style-type: none">▪ Tutored 14 students▪ Qualified multiple students to receive full-tuition scholarships to the United States Air Force Academy, United States Naval Academy and United States Military Academy West Point	

SKILLS

- Proficient in Python (Pandas, NumPy, PyTorch, Scikit-learn, NetworkX), Latex, C++, Sage, and Java
- Speak Italian fluently

WORK EXPERIENCE

Corporate Strategy Intern	Aug 2024-Nov 2024
Qualtrics	Orem, UT
<ul style="list-style-type: none">▪ Managed finances and wrote grant applications for 5 For the Fight▪ Worked directly with board of directors to coordinate cancer research efforts	

VOLUNTEER EXPERIENCE

Full time Volunteer Representative

Jul 2020-Jul 2022

Church of Jesus Christ of Latter-Day Saints

Northern Virginia/Milan, Italy

- Held a leadership position over hundreds of volunteers to coordinate service efforts for over a year
- Provided 20 hours a week of service to food pantries and thrift stores
- Constructed a barn from the ground up for A Farm Less Ordinary
- Provided ambulance and emergency services for non-profit organization La Croce di Misericordia