Paul Lutkus

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See what I'm currently working on at paullutkus.github.io

EDUCATION

University of Pennsylvania, School of Engineering and Applied Science *May 2023*
Masters of Engineering
Major: *Electrical and Systems*
Concentration: *Decision and Information Systems*

Tufts University, School of Arts and Sciences *May 2021*
Bachelor of Science
Major: *Physics* (Highest thesis honors)
Minor: *Computer Science*

George School *May 2017*

RELEVANT EXPERIENCE

Distributed Intelligent and Safe Control Systems (DISCS) Laboratory | *Researcher*
2022 –

- Paper (*in progress*): Online Learning of Safe Control for Dynamical Systems
- Simulate and control dynamical systems using convex optimization and machine learning

Tufts Neutrino Group | *Undergraduate Researcher, Full-time* 2018 – August 2021

- Built generative deep learning models to simulate high-energy physics readings from the Fermilab collider
- Authored ICLR 2021 Paper: *Towards Designing and Exploiting Generative Networks for Neutrino Physics Experiments using Liquid Argon Time Projection Chambers* (https://arxiv.org/abs/2204.02496)

SELECTED COURSEWORK

Modern Convex Optimization
- Recognized, formulated, and solved convex optimization problems using the CVX library

Control Theory and Optimization for Robotics
- Controlled robots and other dynamical systems using optimization theory and dynamic programming

Principles of Deep Learning
- Implemented and evaluated deep neural networks using PyTorch and NumPy

Learning in Robotics
- Bayesian inference, reinforcement learning, SLAM, in the context of robotics

Combinatorial Optimization
- Shortest path, spanning tree, bipartite matching, and other graph optimization problems solved as linear programs

Machine Perception
- Geometric and machine learning techniques to solve computer vision problems

SKILLS

Technical: C++, C, Python (NumPy, PyTorch, Tensorflow, JAX, Matplotlib), Haskell
Interests: Mathematical modeling, control theory, robotics, neuroscience, physics