I. DAVID REIN

817-800-0794 | irving.rein@duke.edu | idavidrein.github.io | linkedin.com/in/idavidrein | github.com/idavidrein

EDUCATION

Duke University Expected May 2021

- B.S. Computer Science, B.A. Philosophy, Minor in Mathematics - GPA: 3.82/4.0
- Machine Learning (graduate level), Bayesian Statistics, Intro High Dimensional Data Analysis, Advanced Intro Probability, Linear Algebra, Advanced Multivariable Calculus, Computational Microeconomics, Operating Systems, Computer Architecture, Data Structures and Algorithms

RESEARCH EXPERIENCE

Duke University: Machine Learning Research with Dr. Vincent Conitzer January 2020 - Present

- *Classification with Strategically Withheld Data:* Accepted - IML@ICML2020; In Review - NeurIPS 2020
- Designed and implemented experiments evaluating the performance of a novel classification algorithm that is provably robust to strategically withheld data, and an approximation that has good generalization performance.

Duke University: Deep Learning: Theory and Use January - May 2019

- Designed materials for the graduate-level *Foundations of Deep Learning* (STA 790) course, taught in Fall 2019.
- Created lecture slides, and designed illustrative experiments regarding regularization, NAS, quantization, and training strategies. Course was part of the SAMSI 2019 Program on Deep Learning, taught by Dr. David Banks.

Duke Data+: Machine Learning Engineering & Research June - December 2018

- Operationalized the ML pipeline with Spark for the Duke Forge analysis of Electronic Medical Records (EMR).
- Developed a fast, parallelized NLP preprocessing toolkit.

National Institute of Standards and Technology (NIST): Data Science Intern June - August 2017

- Data analysis/visualization of molecular dynamics simulations of thermoset polymers.

LEADERSHIP

Duke Undergraduate Machine Learning: Co-President August 2018 - Present

- Organized 2019 Duke Datathon with 350+ participants; raised over $20k in sponsorship for the event.
- Hosted ~20 speakers from leading industry and research labs for seminars and workshops; average 20-40 attendees.
- Helped organize 2019 Duke Machine Learning Day, a conference for undergraduates with 125+ attendees.

Duke Effective Altruism Arete Fellowship: Director August - December 2019

- Led and designed a 12-week discussion-based program to introduce 20+ undergraduates to Effective Altruism.

ACTIVITIES AND SKILLS

Reinforcement Learning Implementations May - June 2019

- Implemented REINFORCE (VPG), A2C with Generalized Advantage Estimation, and Proximal Policy Optimization.

ASA Duke DataFest: Best Insight Award April 2019

- Competed in a group against 425+ undergraduate (2/3) and graduate (1/3) students from 8 universities.
- Predicted fatigue from biometric data of the Canada women's rugby 7s team with a Cox proportional hazards model.

Kenan Institute for Ethics Policy Prize in the Ethics of Emerging Tech: 2nd Place April 2019

- Co-authored research paper on mechanics, ethics, and international policy of orbital debris and anti-satellite weaponry
- Presented paper at the 2019 Duke Conference on the Ethics of Emerging Technology.

Languages and Tools

- Fluent with Python, experience with Java, R, MATLAB. PyTorch, Scikit-Learn, Pandas, Tensorflow, Matplotlib