# I. DAVID REIN

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## EDUCATION

**Duke University** December 2021

- B.S. Computer Science, B.A. Philosophy - GPA: 3.81/4.0
- *Machine Learning (graduate level), Bayesian and Modern Statistics (graduate level), Intro High Dimensional Data Analysis, Advanced Intro Probability, Applied Ethics, Linear Algebra, Advanced Multivariable Calculus, Metaphysics, Ethics and AI, Computational Microeconomics, Algorithms, Operating Systems, Computer Architecture, Science and Social Justice*

## WORK & RESEARCH EXPERIENCE

**Cohere:** ML Research Engineer September 2020 - Present

- Representation learning research, designing and implementing core infrastructure to train large language models

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

- *Classification with Strategically Withheld Data:* IML@ICML2020; Published @ AAAI 2021
- 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.

## LEADERSHIP

**Duke Undergraduate Machine Learning: Co-President** August 2018 - 2020

- 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: Co-President** August 2019 - 2021

- Led and helped design the Arete Fellowship, a 12-week discussion-based program to introduce 20+ undergrads to EA.

## 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:** Python, NumPy, TensorFlow, PyTorch, Scikit-Learn, Pandas