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, Minors in Philosophy, Mathematics - GPA: 3.8/4.0
- Machine Learning (graduate level), High Dimensional Data Analysis, Advanced Probability, Linear Algebra, Advanced Multivariable Calculus, Operating Systems, Computer Architecture, Data Structures and Algorithms

RESEARCH EXPERIENCE

MedIX REU: DePaul and UChicago: Computer Vision Research June - August 2019

- Developed algorithm to segment drusen in sparsely sampled SD-OCT volumes. Manuscript under review.

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

- Designed materials for the graduate-level *Foundations of Deep Learning* course, taught in Fall 2019.
- Created lecture slides, and designed illustrative experiments regarding regularization, NAS, quantization, and training strategies. Course is part of the SAMSI 2019 Program on Deep Learning, and is 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).
- Continued work through 2018 Fall, where I developed a fast, parallelized NLP preprocessing toolkit.

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

- Applied and Computational Mathematics Division of the Information Technology Lab.
- Data analysis/visualization of molecular dynamics simulations of thermoset polymers.

LEADERSHIP

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

- Marketing Director (2018-2019)
- Organized 2018 Duke Datathon with 250+ participants, helped raise and manage $70k+ budget.
- Regularly host speakers for seminars and workshops to engage undergraduates in ML; average 20-40 attendees.
- Organized 2019 Duke Machine Learning Day, a conference for undergraduates with 125+ attendees.

Duke Effective Altruism Arete Fellowship: Director August 2019 - Present

- Led and designed 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: 1st Place - Best Insight Award April 2019

- Competed in 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 2019 Duke Conference on the Ethics of Emerging Technology.

Languages and Tools

- Fluent with Python, experience with Java, SQL, R, C++, MATLAB, HTML, CSS.
- Very experienced with Scikit-Learn, Pandas, TensorFlow, familiar with Dask, Gensim, NLTK, OpenCV.