NATHAN BLAIR

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EDUCATION

University of California, Berkeley| Berkeley, CA
Bachelor of Science in Electrical Engineering and Computer Science May 2020
Graduate Coursework: Computer Vision, Trustworthy Deep Learning, Deep Reinforcement Learning,
Linear System Theory, Quantum Computing GPA: 3.821
Undergraduate Coursework: Machine Learning, Artificial Intelligence, Algorithms, Computational Photography,
Probability and Random Processes, Optimization Methods, Linear Algebra and Differential Equations,
Data Structures, Signals and Systems, Discrete Math and Probability Theory, Computer Architecture

EXPERIENCE

NASA JPL | Computer Vision Intern (Asteroids)

June 2019 – August 2019

- Built machine learning models for classifying near earth objects.
- Compared deep neural networks, linear models, kernel models, and random projection methods.
- Designed robust visualization methods for model explainability.
- Acted as the sole machine learning scientist on my team.

UC Berkeley | Machine Learning and Control Research with Claire Tomlin

January 2018 – Present

- Design new data-efficient machine learning methods for controlling complex robotics systems.
- Test our methods on real "turtlebot" machines and compare the results to established ML algorithms
- Compare results in the real world to results in simulation.
- Consider safety guarantees for complex, risky and poorly understood real world environments.

NASA JPL | Computer Vision Intern (Comets)

June 2018 – August 2018

- Trained a faster-rcnn neural network to detect bright comets in infrared data taken by the WISE satellite.
- Built a library for object detection on astronomical data that extends Tensorflow's object detection API.
- Wrote scripts for neural network training and evaluation, data collection, and image annotation
- Typed over 4000 lines of commented and tested Python code.

Caltech| Research Support Intern

May 2014 – August 2015, May 2015 – August 2016

- Performed daily quality assurance checks on minor planet candidates.
- Discovered previous undetected comets by "stacking" candidate images.
- Published Co-Author of "The NEOWISE-Discovered Comet Population and the CO+CO2 Production Rates"

PROJECTS

Encouraging Categorical Meaning in the Latent Space of a VAE

- Discovered previous undetected comets by "stacking" candidate images.

Random Embeddings for Robust Deep Learning

- Showed that adding a random fourier embedding layer before a neural network may increase model robustness.

SKILLS AND INTERESTS

Languages:	Python, Java, MATLAB, C, JavaScript, SQL, PHP, RISC-V, Scheme, HTML, CSS
Libraries:	Numpy, Matplotlib, Tensorflow, PyTorch
Academic Interests:	Generative Music, Generative Art, Quantum Computing, General AI, Ethical and Safe Learning