OLIVER BRYNIARSKI

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EDUCATION

University of California, Berkeley Aug. 2018 - Dec. 2021
B.A. Computer Science and Mathematics with Honors (Double Major)
GPA: 3.78

EXPERIENCE

Ambi Robotics, *Machine Learning Engineer* Jan. 2022 - Current

- Designed and implemented **IR stereo depth estimation**, allowing us to use a much cheaper sensor for **robotic grasping**.
  - Trained with simulation and real data collected using a rig I set up and calibrated.
  - Implemented **self-supervised** MonoDepth to make use of production data.
  - Improved **real world** grasping performance by **5-10%** in general and **30+%** on edge cases (black/transparent objects).
  - Saved **$6.5k** per machine.
- Implemented **AmbiML** (>50%), our machine learning inference and training platform.
  - Includes **distributed training** on cloud and on-prem hardware as well as **data and model versioning**.
  - Inference runs on dozens of production robots.
- Trained and A/B tested numerous machine learning models on production robots (**classification with multiple sensors, instance/object segmentation, depth estimation**).
- Fine tuned **transformers** for OCR of various text fields on package shipping labels.

Amazon, *Software Development Engineer Intern* May 2021 - Aug. 2021

- Implemented variable aliasing in Amazon's buyer fraud detection **data loading** pipeline, fixing a huge pain point for applied scientists.
- Implemented graph convolutional networks for buyer fraud detection.

Berkeley Artificial Intelligence Research (BAIR) - Prof. John Canny, *Undergraduate Researcher* June 2020 - Dec. 2021

- Worked under David Chan and John Canny
- Researched **cluster based contrastive learning** methods without a fixed number of clusters.
- Implemented density-based clustering (**DBSCAN**) as a more theoretically sound alternative to **k-means**, improving performance over SOTA clustering methods.
- Assisted other master's students in the lab (literature review, paper review).

Machine Learning @ Berkeley, *Undergraduate Researcher* Oct. 2020 - Dec. 2021

- Worked with Nicholas Carlini
- Researched new adversarial attack method called **Orthogonal Projected Gradient Descent,** breaking four published (CCS/CVPR) defense papers.
- **Co-first author** of **ICLR 2022** paper, see publications below.

PUBLICATIONS

Evading Adversarial Example Detection Defenses with Orthogonal Projected Gradient Descent
O. Bryniarski, N. Hingun, P. Pachuca, V. Wang, N. Carlini, ICLR 2022. Found at https://arxiv.org/abs/2106.15023.

SKILLS

LANGUAGES: Python, Java, C, C++, SQL
FRAMEWORKS: PyTorch, Tensorflow, OpenCV, NumPy, Docker, AWS, Git, Pandas, Linux, Huggingface, TensorRT, ONNX
MATH: Measure Theory, Real Analysis, Topology, Differential Geometry, Optimization, Numerical Analysis