ALEC MACLEAN GUNNY

alec.gunny@gmail.com | (310) 600-3175 | Los Angeles, CA | github.com/alecgunny | alecgunny.github.io

EXPERIENCE

Associate Researcher
Massachusetts Institute of Technology — **May 2020 – Present**

- Implementing a high-throughput, cloud based deep learning inference pipeline for real-time noise removal in LIGO strain data.

Applied Machine Learning Scientist
NVIDIA — **Jan 2020 – Nov 2020**

- Worked on GPU-accelerated tabular data processing library NVTabular, focusing primarily on integration with TensorFlow data loading APIs to accelerate tabular model training by a factor of 10-20x.
- Built dataset and architecture agnostic training and hyperparameter search pipeline on top of NVTabular and Keras for performing robust tabular deep learning research.

Solution Architect/Senior Solution Architect
NVIDIA — **Sep 2017 – Jan 2020**

- Collaborated with data science and infrastructure teams from large consumer internet companies to build scalable, GPU-accelerated deep learning systems for both training and inference.
- Synthesized solutions to common industry problems into presentations, blog posts, demos, and conference talks aimed at a variety of audiences.

Data Scientist
Children's Hospital Los Angeles — **Apr 2016 – Sep 2017**

- Researched recurrent neural networks to model asynchronously and irregularly sampled EMR data from patient stays in the pediatric ICU.
- Extended published work with research into deep structured inference models and visualization and inference applications for collaboration with physicians.

Scientist
Arete Associates — **Aug 2014 – Apr 2016**

- Applied traditional signal and image processing techniques as well as machine and deep learning to a range of detection, tracking, and regression problems.

CONFERENCE TALKS

Training and Deploying a Neural Network for Noise Regression in Gravitational Wave Astronomy
Fast Machine Learning for Science Workshop
December 2020

Deploying neural networks for real-time removal of noise from LIGO gravitational wave strain measurements.

Wide and Deep Recommender Inference on GPU
GPU Technology Conference — **March 2020**

Accelerated inference deployment of a common recommendation architecture using a custom embedding kernel with TensorFlow APIs.

A Trip Through The NGC Tensorflow Container
GPU Technology Conference — **March 2019**

Presented an end-to-end workflow for training a speech recognition model then serving it for inference at reduced precision.

UNDERGRADUATE COURSEWORK

Quantum Mechanics | Electrodynamics | Real & Complex Analysis | Dynamics | Fluid Dynamics | Materials Science | Circuits | MATLAB | Optics

SKILLS

Python
Docker
Bash
C++
CUDA

- Python Libraries

Tensorflow | PyTorch | NVTabular | Scikit-Learn | Pandas | CuDF | Bokeh | OpenCV | Flask | TensorRT | Horovod

- Cloud Computing/Orchestration

AWS | Google Cloud | Docker Compose | SLURM | Kubernetes

EDUCATION

B.Sc. in Engineering Physics
University of California Berkeley
Aug 2010 – May 2014
Graduate with honors

PROJECTS AND AWARDS

- Workflow for training neural networks on AWS and deploying them for inference in an embedded video application.
- ML Primer published using Jupyter Books, GitHub workflows, and Bokeh
- TensorFlow implementation of Hogwild! asynchronous training algorithm which hosts multiple workers on the same GPU.
- Top 10% finisher in Kaggle Diabetic Retinopathy Detection Competition
- Statistical analysis of TSA throughput data to infer ideal airport arrival time via cost optimization
- Flask-based fantasy surf app deployed using AWS RDS and Elastic Beanstalk