# Nathan Meyer

Machine Learning Engineer / Data Scientist

I am a passionate machine learning professional with experience in a wide variety of industries such as cybersecurity, avionics, civil engineering, and hospitality. My background in machine learning and strong desire to continuously learn is something I want to bring to data science related roles to help businesses streamline processes and make informed decisions.

## EXPERIENCE

### Avero, Boulder, CO — *Machine Learning Engineer*

August 2019 - PRESENT

*Avero provides restaurant analytics software to leaders in the hospitality industry.*

- Support the standardizing and enriching of Avero's data. Developed industry first automated taxonomy classifications using NLP approaches at scale, achieving 93+% accuracy and 0.9+ measurements for F1, Recall, and Precision for various taxonomy projects. Used Oracle databases and automated mining Yelp data to create the models.
- Deploy models to MLFlow and build APIs/gRPC endpoints that use the models for performing predictions. Collaborative efforts towards taxonomy and recommendation.
- Extensively use python, scikit-learn, Tensorflow, Keras, jupyter notebooks, docker, MLFlow, and SQL.

### Fuscoe Engineering, Irvine, CA — *Data Scientist*

October 2018 - July 2019

*Fuscoe Engineering is a civil engineering firm delivering creative and sustainable designs throughout Southern California, the Bay Area, and Internationally.*

- The company's 1st data scientist. Drove efforts in ML for various computer vision applications such as pavement damage detection, object detection, and geospatial image classification garnering interest from neighboring counties.
- Earned company's 1st machine learning related contract with a city.
- Extensively used CUDA, Tensorflow, Keras, OpenCV, and high powered GPU AWS EC2 instances to train models.
- Done almost entirely solo.

### Panasonic Avionics Corporation, Lake Forest, CA — *Security Engineer*

June 2016 - October 2018

*Panasonic Avionics Corporation designs, engineers, and manufactures customized in-flight entertainment and communications solutions to airlines worldwide.*

- Intern converted to full-time employee who supported the development of the Security Operations Center (SOC) from the ground up using SIEM software and IPS tools.
- Performed vulnerability scans on various in-flight entertainment systems.
- Extensive python/bash scripting for automation and statistical modeling of security log data, worked with various protocols such as DNS, TCP/IP, UDP, IPSec, HTTP/S, BGP.

### University of Washington Student Athlete Academic Services, Seattle, WA — *Calculus Tutor*

September 2015 - March 2016

*The University of Washington Student Athlete Academic Services offers tutoring and study*

## CONTACT

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## SKILLS

- Python
- Jupyter Notebook
- Sci-kit Learn
- Tensorflow
- Keras
- NLTK
- Probability & Statistics
- Machine Learning
- Computer Vision
- Deep Learning
- Natural Language Processing
- Recommendation Systems/Algorithms
- Spark/PySpark
- Parallel Computing
- Cybersecurity
- GIS
- SQL
- Matlab
- R
- Java
- C++
- Docker
- AWS
- GCP
- Jenkins Pipelines

## CERTIFICATIONS

**Exam P** | Society of Actuaries | 2015

**Security+** | CompTIA | 2017

**Network+** | CompTIA | 2017

## CONFERENCES

**Blackhat 2017**
**Blackhat 2018** –
*Course Taken*:
"Applied Data Science and Machine Learning for Cyber Security"

*resources to the university's student athletes.*

- Tutored Calculus 1, 2, and 3 to the student-athletes. Tutored group and individual sessions.

## EDUCATION

**University of California-San Diego**, La Jolla, CA — *M.S. Computational Science & Mathematics*

September 2016 - June 2018

**University of Washington**, Seattle, WA — *B.A. Mathematics*

September 2012 - June 2016

## NOTABLE PROJECTS - PROFESSIONAL & ACADEMIC

### Item Taxonomy — *NLP (Professional)*

- The goal of this project was to categorize food/beverages based on their raw item description. This would allow for a standardization of items and a way of benchmarking at the item level for restaurants. An example of an item taxonomy would be 'cab sauv 2017' → Beverage →Wine → Red Wine.
- Tf-idf matrices and various simple classifiers combined into an ensemble classifier proved to be very effective. Other taxonomy projects took similar approaches but were later transitioned from traditional models like Random Forests, SVM's, Decision Trees, and Multinomial Naive Bayes to using relatively shallow neural networks that yielded equal if not better results.

### Data Enrichment via Yelp— *Data Mining (Professional)*

- As a part of enriching a database containing business names and zip codes but simultaneously missing or having incorrect values for other attributes, Yelp was a perfect place to mine this data. Through the Yelp API, all of the businesses with a corresponding zip code were queried to obtain more granular data on cuisine type, venue type, and price level of a restaurant.
- This minor enrichment of business attributes made it easier to build more accurate models.

### Pavement Damage Detection — *Computer Vision (Professional)*

- This project involved extensive use of the Mask-RCNN architecture to make predictions on images of pavement where damage existed. Used images with a corresponding json file as labels and trained for hours (sometimes days) to get an accurate prediction mask. Damage severity was determined by the percentage of the image that was classified as damage (pixels in a damaged area / total image pixels).

### Parking Lot Occupancy Monitoring— *Computer Vision (Professional)*

- A project aimed to provide the real time status of a parking lot (number of spots occupied vs empty). ArcMap GIS software was utilized to fix the region of interest (parking spots). A VGG16 classifier was run for the binary problem achieving 99+% accuracy. This provided a live count of the available parking spots for a given shopping center.

### Malicious URL Classification— *Cybersecurity (Professional)*

- Utilized machine learning techniques to add an enhanced layer above the standard blacklist approach. Took a dataset of labeled malicious and non-malicious URLs, extracted features such as URL length, number of digits, second level domain type, etc. Used this information to create a classifier utilizing random forests.

### Manifold Learning— *Dimensionality Reduction (Academic)*

- General project of taking high dimensional data and reducing the dimensionality of the non-linear data. Performed on images of faces, numbers, and other higher dimensional manifolds. Used algorithms like MDS, Local Linear Embedding, Isomap, and PCA. Done in python.