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## About Me

As an established machine learning engineer and software developer, my aim is to apply myself at the highest levels, challenge myself daily, and perpetually increase my skillset and

## Education

### Bachelor of Science in Computer Science

George Mason University, Honors College - 2017

## Skills

### Machine Learning

Deep Learning  
Reinforcement Learning  
Neural Network Design  
Linear Algebra, Statistics

### Frameworks

PyTorch  
TensorFlow  
Keras  
SciKit Learn

### Languages

Python  
Java  
JavaScript

### Environments

Jupyter Notebook  
Docker  
PyCharm

## Experience

### Machine Learning Engineer Next Century

February 2019 - Present

- Machine Learning research that lead to increased accuracy and correlation of image manipulation detection and DeepFake detection through Machine Learning Data Fusion on DARPA Media Forensics Program  
Model development and research in PyTorch and TensorFlow.

### Associate Software Engineer Innovative Defense Technologies

July 2013 - January 2019

- Architected a cost-effective system for stress testing and benchmarking scalable distributed micro services and streaming platforms.  
Docker, Apache Bench, JMeter, other stress testing tools
- Ongoing customer site integration and product support
- Designed and constructed a comprehensive Continuous Integration (CI) Pipeline and development suite  
Jenkins, GitLab, Nexus, Jira, HipChat, Apache email
- Machine Learning powered intelligent storage, sorting, and deletion of image files based on relevancy and task importance in a space constrained environment.  
Python, SQLite

- Technical writer on SBIR proposal team
- Executed STIG security compliance test to ensure software had been hardened to cyber security threats  
Nessus, WireShark
- Discovered system vulnerabilities in a highly reduced timeframe via Machine Learning powered genetic algorithm fuzz testing.  
Python, genetic algorithm
- Improved optical character recognition (OCR) on low resolution imagery  
Java, Tesseract (OCR tool), statistical modeling
- Plot vehicle locations on NASA's WorldWind open source map
- Automated testing, unit testing and bug fixes  
Java, JUnit, ECLEmma

## Personal Projects

### Kaggle Contributor

[kaggle.com/ottpeterr](https://kaggle.com/ottpeterr)

Over 99% accuracy on hand written digit classification (MNIST Dataset)

2D conv. net, Keras

Accurate detection of fraudulent credit card purchases with data oversampling

Random forest, neural net, Keras

Taxi Fare prediction for New York taxi rides

Dataset of 50,000,000 rows with only 12GB of RAM

Pneumonia detection through on x-ray images with generated imagery

2D conv. net, image generation for training

## Hobbies and Interests

### Raspberry Pi

Spanning HomeAssistant installation

Light Control, Security System, Device Tracking, Home Server

Home surveillance camera Raspberry Pi with chat bot integration

Python, Telegram (chat platform)

Current Project: TinyRL, small RL projects that can be run on a Raspberry Pi

TensorFlow

### - Home Automation

Various Raspberry Pi's running home surveillance cameras, network wide ad-blocking, smart light control, presence detection, family location sharing and more!

### MX-5 Miata

It's my daily car but also my weekend project car. Ask me about it!

