Matthew Ciolino

Data Scientist | matthew@matthewciolino.com | Portfolio | 908-967-0559

Experience

Data Scientist Nov 2020 – Present

PeopleTec *Remote, USA*

- Led applied research on satellite imagery using deep learning, driving advancements for Object Detection, Natural Language Processing, Adversarial AI, Super Resolution, and Dataset Creation.
- Created AllPlanes Dataset: the largest fine-grained airplane object detection dataset with 410+ Civilian and Military plane classes in 86,785 instances, utilizing active learning and external labelers.
- Designed Blackhawk AI Helicopter Instructor including real-time Speech to Text, Text to Speech, LLM, and RAG systems to instruct new UH60-Helicopter students using a combination of event detection and directed tasks.
- Presented research at National and International Machine Learning Conferences (AI4I, NIAI, NFCS)
  - Training Set Effect on Super Resolution for Automated Target Recognition (SPIE)
  - Fortify Machine Learning Production Systems: Detect and Classify Adversarial Attacks (ICMLA)
  - Soft Labels for Rapid Satellite Object Detection (ICAIT)

Machine Learning Engineer Nov 2019 – Nov 2020

PeopleTec *Huntsville, AL*

- Developed Super-Resolution framework that increased precision (mAP) for various computer vision tasks by 15%
- Cleaned helicopter maintenance logs using a bootstrapped hierarchical work unit code classifier to correct over 300k misclassified maintenance events for the 160th Special Operations Aviation Regiment
- Implemented Gradient Boosting to provide real-time results 2000x faster at R^2 of .97 for PEELS Lethality Sim

Junior Engineer Nov 2018 – Nov 2019

PeopleTec *Huntsville, AL*

- Developed fast, physics-based models for predicting damage and response of threat systems due to missile collisions
- Maintained and wrote efficient C++ and Fortran code for Parametric Endo/Exothermic Lethality Simulation (PEELS) using version control and coding guidelines to increase accuracy by 12% (Validation on Linux/Windows)

Projects

xEval Legislation Alerts Dec 2020 – Jan 2022

- Established both UI/Frontend (Node/Bootstrap) design and Data Science (recommendations) microservices
- Scraped and analyzed over 455k bills into a SQL database to provide over 125 customers with 13k daily alerts
- Deployed apps on AWS EC2 and Lambda, managed version control in Git, and optimized workflows with CI/CD.

Soterra: Women's Safety XPRIZE Jan 2017 – May 2018

- Led design of 1st mesh networking (IOT) commercial electronic device (C++) for women's safety device industry
- Directed creation of mechanical (SolidWorks) and electrical (PCB) documentation for production of our device

Education

Georgia Institute of Technology Atlanta, GA

Master of Science in Computer Science, Computational Perception and Robotics *2020 – 2024*

Lehigh University Bethlehem, PA

Bachelor of Science in Mechanical Engineering, Minor in Aerospace Engineering *2014 – 2018*

Technical Skills

Languages: Python, JavaScript, C#, HTML, CSS, C++, SQL

Frameworks: PyTorch, Tensorflow, Keras, Scikit-learn, NumPy, Pandas, Node, React, Bootstrap

Developer Tools: Git, Docker, AWS, Unity, VS Code, Jupyter, Hugging Face, OpenAI