**Quinn Meyer**

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**EXPERIENCE**

**Data Scientist – Camera Systems and Operations 2018 - Present**

**Aptiv,** Troy, Michigan

*Merging Math & Machine Learning for Automotive Manufacturing Applications*

* Used unsupervised learning (**K-Means Clustering, MATLAB**) to create new testing process that identified cameras likely to fail temperature trials, reduced product engineering design cycle by 2-4+ weeks.
* Developed object detection algorithm (**Python, Tensorflow, Neural Network, OpenCV**) to automate detection of optical targets during testing, reduced data post-processing and manual work time by 95%.
* Created new way to quantify image sensor performance, leveraged Fourier Signal Processing to determine focus score (**Python, Pandas, Numpy**), used to reduce camera failure investigation time by 2-4 weeks.

*End-to-End Software Development to Support Testing & Operations*

* Collaborated with cross-functional teams to define metrics and measure camera performance, analyzed competitor landscape (**Pandas**) to set establish acceptance criteria and offer competitive products.
* Created end-to-end software package (**MATLAB**) for deployment in manufacturing process to automate testing and data collection, ensured cameras met specification on metrics such as Focus Score, etc.
* Analyzed test & manufacturing data (**Python, MATLAB**) to validate new camera testing methods that used less space on the factory floor, reduced cost of testing by 92%.
* Designed and deployed custom objective function optimization algorithm (**MATLAB**) to calibrate camera alignment on custom testing rig, reduced annual hardware and maintenance costs by $300K+.
* Built data pipelines and storage methodology to ingest and clean (**Python**) testing and calibration data.
* Acted as project manager and liaison with customers, gathered requirements, translated business needs into technical requirements, and gave presentations to technical / non-technical stakeholders / customers.
* Developed integration with 3rd party software (**Python, Solidworks**) to automatically design structural hardware, ensuring product met vision requirements, reduced development program delay by 4+ weeks.

**PROJECTS**

**High Accuracy Geometric Calibration Software in Python (**[**LINK**](https://efovee.com)**)**

*As an engineer working in the camera industry, I have grown an appreciation for the mathematics behind the analysis and configuration of cameras. Here, I use computer vision techniques to geometrically calibrate cameras comparable in accuracy to industry standard solutions such as Imatest and Axios 3D.*

* Devised novel checkerboard corner detection algorithm requiring no inputs able to detect corners down to a size of ten pixels – completely outperforming open-source alternatives, such as OpenCV, by all metrics.
* Constructed novel intrinsic calibration algorithm to geometrically calibrate fisheye cameras with mean reprojection error of less than 0.4 pixels and average 20-meter triangulation error of less than 0.15%.
* Developing visualizations, analytics, and performance metrics as well as researching optimization methods and intrinsic calibration models to make high-accuracy intrinsic calibration more accessible to the world.

**EDUCATION**

**Western Governor’s University**, Salt Lake City, UT **Dec 2022**

**Master of Science – Data Analytics, GPA:** 4.0 / 4.0

**Relevant Coursework:**  Data Mining, Predictive Modeling, Exploratory Data Analysis, Data Acquisition

**Purdue University**, West Lafayette, IN **May 2018**

**Bachelor of Science – Mechanical Engineering, GPA:** 3.6 / 4.0

**SKILLS & CERTIFICATIONS**

**Programming:** Python (Pandas, SkLearn, Tensorflow, Numpy, Keras, Pillow), R, SQL, MATLAB, HTML

**Software:** Tableau, Git, Microsoft Word, Excel, Powerpoint, Jira, ETL

**Others:** Machine Learning, Deep Learning, Computer Vision (OpenCV), Signal Processing