John F. Hughes

johnfhughes.net

Work Experience

L3Harris Technologies — **San Diego, CA**

Space Materials & Process Engineer II — **August 2019 - Present**

- Ran tests on non-conforming material using x-ray fluorescence to determine faults in printed circuit boards.
- Developed Python scripts to automate compilation of hundreds of lines of data regarding materials and processes for deliverable hardware and successfully cut time to compile lists by 80%.
- Designed tools using SolidWorks and 3-D printed them to be used on main space manufacturing line.

Optical Process Engineer II — **January 2018 - August 2019**

- Developed and optimized fiber-optics processing via design of experiments and achieved 95% process yield for low-loss optical couplers.
- Performed destructive testing (e.g. stress, temperature cycling) on both materials and manufactured products to analyze their functionality in harsh conditions.
- Utilized variety of supervised/unsupervised learning algorithms (e.g. k-nearest neighbors, k-means clustering, multilayer perceptron) via scikit-learn to classify microscopic images for IR&D efforts and have achieved a model accuracy of 98%.

Northrop Grumman — **Baltimore, MD**

Technical Engineer Intern, Process Integration — **May 2016 - August 2016**

- Developed design of experiments to determine optimal processing conditions of a chemical-mechanical planarization process and was able to mitigate device non-uniformity by 50%.
- Diagnosed problematic photolithography processing of silicon wafers through root-cause analysis of thermal processing modules and relieved backup of over 50 wafers.
- Analyzed devices (e.g. I-V characterization, thin-film profilometry) to ensure wafers in emerging processes were within specifications.

Volvo — **Hagerstown, MD**

Manufacturing Engineer Co-op — **January 2014 - July 2014**

- Partnered with factory workers to implement efficient and ergonomic standard operating procedures to achieve a $200 reduction in cost per engine.
- Managed Kaizen product which focused on development of apparatus to prevent screws/bolts from falling into engines and subsequently cause downtime (~$4200/minute).
- Managed Yamazumi charts of new manufacturing line development to ensure each station was below cycle time across the entire process.

Education

Rochester Institute of Technology — **Rochester, NY**

M.S., Microelectronic Engineering, August 2017

Thesis Topic: Sensitivity Enhancement of Metal-Oxide Chemical Sensors for Detection of Volatile Organic Compounds

B.S., Chemical Engineering, May 2015

Independent Projects

Pneumonia Detection Application

- Using multilayer perceptron model via scikit-learn to correctly detect pneumonia cases among dataset of ~5800 x-ray pictures with 95% accuracy.
- Utilizing image processing methods via Python Imaging Library to improve model accuracy by 20%.
- Creating graphical user interface using Tkinter to load images and make predictions.

Technical Skills

Languages: Python (intermediate) | **Version Control:** Git | **Databases:** SQLite, MySQL