PETER VUYK

Engineer ● Data Scientist ● Developer

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Work Experience

Teaching Assistant | Trilogy Education Services *09/2020 – Present, **4 mo.***

- Work alongside instructor to teach and assist students in learning how to mine, mung, analyze, and visualize data
- Teach subjects starting with Excel and VBA and progressing through Python, Git/GitHub, APIs and JSON, JavaScript, HTML/CSS, SQL & NoSQL, R, Tableau, descriptive and inferential statistics, Hadoop, Spark, and machine learning

Field Test Engineer | Cummins Inc *07/2020 – Present, **6 mo.***

- Facilitate customer relations and service with five outside customers agreeing to operate with a development engine
- Utilize MATLAB and Excel tooling for assessing duty cycle and performance data being transmitted from field units
- Support team via Power BI report generation/maintenance, SharePoint organization, and Nintex workflow automation

Dyno Test Engineer | Cummins Inc *01/2019 – 07/2020, **16 mo.***

- Executed seven local and offsite engine tests (typically running 24/7) in conjunction with mechanical support, IT, facilities, operations, and product validation teams via regular presentations and strategic communication
- Automated engine testing with Cyflex and analyzed collected data with Excel VB, GNU Bash, MATLAB, and Python
- Developed Excel/VBA and MATLAB tools for processing, analyzing, and visualizing large, disparate datasets containing raw engine and test cell sensor data. Tools currently used by over 40+ engineers and growing
- Mentored new test engineers on best-practices in data analysis, communication, organization, and test execution

Performance Modeling Intern | Cummins Inc *05/2018 – 08/2018, **3 mo.***

- Delivered MATLAB GUI for applying k means clustering to customer engine data to improve product validation by helping to quantify the characteristics of anomalous or representative usage across engine platforms and applications
- Executed physics-derived damage factor regression models to predict piston and cylinder head thermal fatigue life based on virtual sensors to compare and validate the abusiveness of engine testing and customer usage

Undergraduate Researcher | Owens Corning/Ohio State University *05/2017 – 12/2018, **19 mo.***

- Performed experiments to study response of elastomeric objects during vibrational, impact, or static loading applications using MATLAB for experimental DAQ and Abaqus CAE for modeling and simulation.
- Designed structures of interest in SolidWorks and implemented small-batch 3D printing for a DoE based on structure geometry and material properties

Engineering Intern | DHL Express CVG Gateway *05/2016 – 12/2016, **3 mo.***

- Developed Excel VBA and SSMS solution that centralizes and pre-processes employee productivity data (hours, production, quality, etc.) from disparate sources and regularly reports KPI trend visualizations to management

Education

- B.S. Mechanical Engineering 2018 (GPA: 3.74 / 4.00) | Ohio State University, Columbus, OH, United States

Honors/Awards

- 3rd Place Mechanical & Aerospace Engineering Research: OSU Denman Research Forum 2018
- 2018 Outstanding Leadership and Research Award: OSU Dept. of Mechanical and Aerospace Engineering

Technical Skills

Software: Python, MATLAB, Git, Excel/VBA, Bash, JavaScript (Node, React, D3, Leaflet), HTML, CSS, Docker, PostgreSQL, MongoDB, VS Code, Metabase, Power BI, Tableau, MS Power Apps/Flows, SharePoint Workflows, Zoom

Concepts: Probability & Statistics, ETL, Data Analysis & Machine Learning, REST APIs, AWS Cloud Architecture (EC2, S3, RDS, Lambda, auto-scaling, load-balancing, etc.), Presentations, Public Speaking, Remote Learning & Teaching

Publications

Vuyk, P., & Harne, R.L. (2020). Collapse characterization and shock mitigation by elastomeric metastructures. Extreme Mechanics Letters, 37, 100682.

Vuyk, P., Cui, S., & Harne, R.L. (2018). Illuminating Origins of Impact Energy Dissipation in Mechanical Metamaterials. Advanced Engineering Materials, 20, 1700828.