MICHAEL W. HOPWOOD

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OVERVIEW

- Aspiring data scientist and engineer: 4 years of experience in **research and analytics**
- Proven experience in **engineering roles** on both solo and team projects

EXPERIENCE

2020 – present **R&D INTERN** **Redacted**

- Natural language processing (NLP) on logs *(details removed)*
- Answering failure classification tasks via highly customized AI/ML implementations

2020 – present **AI ENGINEER** **Sapien Technologies, LLC**

- Machine learning practitioner for economic market analysis
- Backend software engineer flex role

2020 – present **GRADUATE RESEARCHER ASSISTANT** **Data Science Department,** UCF

- Designing novel graph neural networks

2019 – 2020 **ENGINEERING AND DATA ANALYST INTERN** **Quirk Technologies, LLC**

- Wrote efficient algorithms for image processing of real-time video streams
- Designed 3D models for manufacture-grade products
- Contributed to *Business Intelligence* analyses on a thriving market

2018 – 2020 **RESEARCH ASSISTANT** **Florida Solar Energy Center**

- Answering and presenting quarterly Department of Energy deliverables
- Applied machine learning methods for fault detection and classification in solar fields
- Generated efficient algorithms to securely channel data across multiple networks without any loss of data
- Contributed to analytics pipeline based on personalized performance indicators

2017-2018 **RESEARCH ASSISTANT** **Material Engineering Department,** UCF

- Studied the effects of modular defects on solar cells with Python and Nanohub resources
- Accumulated and archived all failures discovered in solar cells to date

2018 **ACADEMIC INTERN** **OSIsoft, LLC**

- Generated algorithms which interact with a unique, protected archive
- Ensured the health of a real-time data management infrastructure (PI System, OSIsoft) by monitoring the flow of data across platforms
- Troubleshoot issues and outages on both local computers and remote servers (virtual machines)

2017 **PHYSICS TEACHING ASSISTANT** **Physics Department,** UCF

- Prepared and taught lectures to 90+ students; held office hours and exam reviews

EDUCATION

2020-2024 **Big Data Analytics (Ph.D.)** **University of Central Florida**
Department of Data Science and Statistics GPA: NULL

2020 **MECHANICAL ENGINEERING (B.S.)** **University of Central Florida**
Burnett Honors College Mathematics Minor GPA: 3.65/4.0

TECHNICAL SKILLS

Proficient Python, SQL, OSI-PI System | **Basic** R, Matlab, AWS, MS Power BI, C, Nanohub tools

Machine Learning Classification, Image Processing, Predictive Modeling

Database management Data Integrity, Data Processing, Pragmatic Statistic Reports

SCIENTIFIC PUBLICATIONS

- **M.Hopwood**, T.Gunda, et.al, “Neural Networks-based classification of IV curves from physically-induced failures of photovoltaic modules”, IEEE Open Access, Aug.2020, https://ieeexplore.ieee.org/document/9186596
- A.Gabor, E.Schneller, H.Seigneur, M.Rowell, D.Colvin, **M.Hopwood**, K.Davis, "The Impact of Cracked Solar Cells on Solar Panel Energy Delivery", PVSC47, June 2020.
- J.Walters, H.Seigneur, E.Schneller, M.Matam, **M.Hopwood**, “Experimental Methods to Replicate Power Loss of PV Modules in the Field for the Purpose of Fault Detection Algorithm Development”, PVPMC, 2019.
- J.Walters, H.Seigneur, E.Schneller, M.Matam, **M.Hopwood**, “Characterization of Nearly Transparent Films for Use in Soiling Experiments”, PVPMC, 2019. https://pvpmc.sandia.gov/resources-and-events/events/2019-12th-pv-performance-modeling-and-monitoring-workshop/

SCIENTIFIC SUBMISSIONS

- **M.Hopwood**, E.Schneller, H.Seigneur, “Fault detection and PV power modeling using machine learning-based day-type classifications”, Solar Energy, tent. 2020
- **M.Hopwood** “PVPolyfit: High-resolution Modeling of PV Power using Meteorological Data”, Software Package

SCIENTIFIC PRESENTATIONS

- **M.Hopwood**, T.Gunda, H.Seigneur, J.Walters, “An assessment of the value of principal component analysis for photovoltaic IV trace classification of physically-induced failures”, PVSC47, June 2020
- **M.Hopwood,** H.Mendoza, T. Gunda. “Generating actionable information through the fusion of text and timeseries data: A case study of extreme weather effects at Photovoltaic plants”, AGU, Dec. 2020

PRESTIGIOUS AWARDS

- **Best Student Presentation Award** at PVSC47 in “Solar Resource for PV and Forecasting”
- Honorable mention in Mathematical Contest in Modeling 2020
- UCF's Gold Pegasus scholarship, 2016