MICHAEL HOPWOOD

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PROFESSIONAL SUMMARY

- Aspiring data scientist and engineer: 4 years of experience in research and analytics
- Proven experience in engineering roles on both solo and team projects (CI/CD experience)
- Open-source software contributor (GitHub: MichaelHopwood)

TOOLS

- **Proficient:** Python (PyTorch & Tensorflow), SQL, R, OSI-PI System
- **Basic:** Matlab, C, AWS, .NET, SAS, MS Power BI, NanoHub tools

SKILLS

- **Machine Learning:** Hybrid models, predictive modeling, supervised & unsupervised, temporal, image, text
- **Deep Learning:** Neural networks (NN), bayesian NN, graph NN, etc.
- **Database management:** Data integrity, data processing, pragmatic statistics reports

WORK HISTORY

R&D INTERN

05/2020 to CURRENT

Sandia National Laboratories | Albuquerque, NM

- Answering failure classification tasks via **customized AI/ML** implementations, **physics-based simulations**, and **NLP** on Operations & Maintenance logs
- **GitHub CI/CD** project management setup and maintenance

GRADUATE RESEARCH ASSISTANT

08/2020 to CURRENT

University Of Central Florida, Data Science | Orlando, FL

- Designing **graph neural networks** for applications on quantum mechanics, social networks, and monitoring power systems
- Advised undergraduate statistics and **computer science** students on data science projects

DATA SCIENTIST

11/2020 to 12/2020

Revolution Medicine | Orlando, FL

- Develop **ML assistant to aid doctors** with deducing best drug for patient given measured genome and input demographic using information extracted from peer-review journal papers

AI ENGINEER / CTO

09/2020 to 03/2021

Sapien Technologies, LLC | Orlando, FL

- **Bayesian ML** for economic market trend analysis
- Develop and deploy live algotrading bot; CI/CD experience

UNDERGRADUATE RESEARCH ASSISTANT

11/2017 to 05/2020

Florida Solar Energy Center | Orlando, FL

- Answering and presenting quarterly **Department of Energy** deliverables for detection and classification of failures in solar fields through ML
- **Data engineering** tasks to securely channel data across multiple networks without any loss of data.
- Studied effects of modular defects on solar cells with Python and Nanohub resources; accumulated and archived all failures discovered in solar cells to date

ENGINEERING AND DATA SCIENCE INTERN

02/2019 to 03/2020

Quirk Technologies, LLC | Orlando, FL

- Designed **3D models** for manufacture-grade point-of-sales product; **business analytics** tasks for business growth tactics

ACADEMIC INTERN

05/2018 to 08/2018

OSIsoft, LLC | Philadelphia, PA

- Generated **python API** for user interaction with company's proprietary archive based off **.NET architecture**
- Ensured health of **real-time data management** infrastructure by monitoring flow of data across platforms

PHYSICS TEACHING ASSISTANT

08/2017 to 12/2017

University Of Central Florida, Physics Department | Orlando, FL

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

EDUCATION

Ph.D. | Statistics And Data Science

EXPECTED IN 08/2024

University of Central Florida, Orlando, FL

- Masters: Statistical Learning
- GPA: 3.85/4.0

Bachelor of Science | Mechanical Engineering

06/2020

University of Central Florida, Orlando, FL

- Mathematics Minor
- Burnett Honors College
- GPA: 3.65/4.0

SCIENTIFIC OPEN-SOURCE PACKAGES

- **pvOps**: Improving Operational Assessments through Data Fusion. https://github.com/sandialabs/pvOps
- **pvPolyfit**: High-resolution Modeling of PV Power using Meteorological Data. https://github.com/MichaelHopwood/PVPolyfit

SCIENTIFIC PUBLICATIONS

- **M.Hopwood,** P.Pho, A.Mantzaris, “Exploring the Value of Nodes with Multi-Community Membership for Classification with Graph Convolutional Neural Networks”, Journal of Informatics, Special Issue in Artificial Intelligence, April 2021. https://www.mdpi.com/2078-2489/12/4/170/htm
- **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.Mantzaris,R.Pandohie,**M.Hopwood**,et. “Introducing Tagasaurus, an Approach to Reduce Cognitive Fatigue from Long-Term Interface Usage When Storing Descriptions and Impressions from Photographs”. Technologies, June 2021. https://www.mdpi.com/2227-7080/9/3/45

SCIENTIFIC PRESENTATIONS

- **M.Hopwood**, P.Pho, A.Mantzaris, “Exploring a link between network topology and active learning”, ICUFN, Aug 2021. http://icufn.org/wp-content/uploads/2021/08/ICUFN-2021-Final-Program-Version-Revised.pdf
- **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. https://ieeexplore.ieee.org/document/9300601
- **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. https://ui.adsabs.harvard.edu/abs/2020AGUFMIN0140003H/abstract
- 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. https://ieeexplore.ieee.org/document/9300743
- 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. https://pvpmc.sandia.gov/resources-and-events/events/2019-12th-pv-performance-modeling-and-monitoring-workshop/
- 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/

PRESTIGIOUS AWARDS

- **Best Student Presentation Award** at PVSC47 in “Solar Resource for PV and Forecasting”
- Runner-up on electric vehicle prediction for energy vendor modeling competition, 2021
- Honorable mention in international Mathematical Contest in Modeling 2020
- UCF's Gold Pegasus scholarship, 2016