DARRELL L. NELSON II

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EDUCATION

Syracuse University: M.S. – Applied Data Science — Syracuse, NY, Dec. 2019

Washington University in St. Louis: B.S. – Chemical Engineering — St. Louis, MO, May 2016
• National Society of Black Engineers, Chapter Development Executive Chair
• Gustav Kurt Mesmer Scholar | Summer Undergraduate Research Award

Lewis & Clark College: B.A. – Chemistry — Portland, OR, May 2014
• Varsity Football, Co-Captain | Multicultural Union, Liaison | STEMs for Youth, Volunteer
• Leadership & Service Student Award | Miller Science Scholar

PROFESSIONAL EXPERIENCE

HRL Laboratories — Los Angeles, CA

Data Scientist — 2020 – Present

GOLLUM Project

• Built and implemented data extraction and analysis modules that automated the data wrangling/cleaning/reporting process; improved efficiency 600-fold (~10 hours by hand vs. ~1 minute execution time)
• Created novel process control parameters for dissipation factors and their approximations based on statistics; quantified process drift, changes, and testing

Digital Manufacturing Project

• Created a data infrastructure for GaN that allows for data extraction, manipulation, analysis (descriptive & predictive) and visualizations to the final customer in an efficient and effective manner
• Encoded fab sequence data from paper travelers and added to infrastructure
• Demonstrated ability to predict current collapse variation using machine learning (ML) models
    o Coupling process knowledge + data infrastructure + ML improved model performance from 25% to 98.96% R2
    o Reduced ~200 features to 20 key factures without losing accuracy
    o Improved 10-fold cross validation accuracy from 24.7% to 91.34% R2
    o Discovered key features in process and quantified the direction and magnitude of their effects
• Scheduled and led lunch meetings (online & in-person) with the other labs in HRL to align on companywide issues and build rapport

Data Pipeline

• Leverage GitLab to build reporting pipeline for GaN team
• Will grant non-software engineers the ability to edit and run ML analysis, enabling quicker screening for key features and improve learning cycle

Critical Manufacturing MES

• Developed portfolio of useful reports utilizing SQL, C#, and Microsoft Report Builder to create dashboards/UI Pages, KPIs, and SPC charts within the MES software; allows teams to quickly detect bottlenecks in their processes
• Currently used in daily management meetings

Applied Materials Inc.
Boise, ID

Process Support Engineer
2016 – 2018

Managing Project Stakeholders

• Oversaw process development life cycle of 5 generations of flash memory with the Producer tool; focused on performance and lowering cost for the customer; improved process efficiency from 30 min. to 5 min.
• Managed clients (Micron Technology Inc.) in R&D and high-volume engineering/manufacturing to ensure quality performance of Producer tools and process, including Proof of Concept, Optimization, etc.
• Conducted bi-monthly meetings with upper management members to align on issues, results, new techniques, timelines, and hardware implementation; built rapport with customers to develop strong connections
• Played an integral role in winning contracts for >$20 million in 2 years
• Published award-winning paper in "Applied Materials Journal of Engineering & Technology;" selected Designated Speaker at annual Dry Etch Summit

Data Analytics & Technology

• Led team as head engineer and served as point of contact for daily process/hardware related issues and failure analysis in R&D, error reporting, troubleshooting, and process transfer to high-volume manufacturing (HVM)
• Scheduled and led weekly meetings/presentations on project objectives, status, issues, and project plans for internal and external multi-disciplinary teams in upper management as well as all employee levels
• Designed, coordinated, implemented, and supervised multivariate tests on all major and minor process/hardware changes
• Trained production teams in Boise, ID, and Singapore facilities in process enhancement and tool capabilities for HVM

Generating Innovation

• Developed new hardware testing strategies with Producer platform to ensure performance is within acceptable operating tolerances; created process sensitivity DOE to ensure a robust process window for handling normal tool-to-tool variation
• Started up new tools and chambers in Micron's R&D facility

Employee Recruitment/Development

• Led group and 1-on-1 discussions about potential career opportunities at University of Washington – Seattle career fair
• Recruited and hired candidate from Washington University in St. Louis; performed hands-on training in modeling, analysis, and tool handling for day-to-day operations with 2 new hires

Washington University in St. Louis – Mentor Collective
Remote from Los Angeles, CA

Volunteer Mentor
Fall 2019 – Present

• Mentor 3 Dual Degree students: assist with career prep, goal orientation, and lifestyle coaching

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PROJECT EXPERIENCE

Syracuse University
Syracuse, NY

Noteworthy Final Projects for M.S. in Applied Data Science
2018 – 2019

Project: Sports Statistics | Course: Big Data Analytics

• Predicted NFL outcomes based on regular season performance using descriptive/predictive analytics with Python
• Used hold-out method and supervised learning to train and evaluate machine learning models: Neural Networks (NNs), Gradient Boosted Classifiers (GBCs), Support Vector Machines (SVMs), & Random Forests (RFs)
• Reduced class bias with label limitations that accurately depict real-world situations to improve algorithm accuracy
• Achieved ~71% accuracy in predicting test cases with GBC

Project: Twitter Analysis | Course: Scripting for Data Analysis

• Evaluated probability of social media influence on college football recruiting & pre-season rankings in Python using text mining of Twitter API data (obtained from Python library Tweepy) for all collegiate teams in Pacific-12 Conference
• Synthesized relevant features based on metadata; developed distance metric to rank features

• Demonstrated that number of retweets per tweet a team receives can influence number/quality of recruits

Project: Salary Forecasting and Job Market Assessment | Course: Text Mining

• Analyzed NYC job listings to determine demand for job skills and positions and to predict salary in Python
• Generated NB and SVM models to predict salary range based on minimum qualifications
• Achieved ~70% training accuracy with SVM in using the model for salary and skills forecasting

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SKILLS

+ **Programming/Software:** Python, R, SQL, MDX, C#, GitLab, GitLab CI/CD Pipeline, Tableau, Power BI, JMP, MindManager, & Microsoft Office Suite
+ **Skills**: ETL, Data Extraction, Data Wrangling, Data Cleaning, Statistical & Predictive Modeling, Analysis, and Optimization; Machine Learning, Supervised & Unsupervised Learning, Anomaly Detection, Classification, Clustering, Sentiment Analysis, Customer Segmentation, & Bayesian Inference