Grant Barland

Data Science, Machine Learning

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EDUCATION

UNIVERSITY OF MINNESOTA, Minneapolis, MN — **SEPTEMBER 2021 - AUGUST 2022**

Carlson School of Management
Candidate for Masters of Science in Business Analytics

UNIVERSITY OF SAINT THOMAS, St. Paul, MN — **SEPTEMBER 2015 - JUNE 2019**

Bachelor of Science - Electrical Engineering- Physics Minor
Cum Laude, 3.68 GPA, IEEE member, 2018 Outstanding Research Award Recipient

EXPERIENCE

CARLSON ANALYTICS LAB, Minneapolis, MN — **NOVEMBER 2021 - PRESENT**

Data Science Student Consultant

Sentiment Analysis ML Model for Workforce Optimization Company

- Developed an XGBoost and LightGBM machine learning model in Python to analyze 57K audio files and text transcripts from customer calls to predict the sentiment of a customer's call.
- Utilized oversampling and undersampling techniques to balance the sentiment classifications in the dataset.
- Achieved a 75.42% improvement in predictive accuracy by incorporating audio features into the model.
- Presented findings to company management and earned a 2nd place award for thorough analysis and valuable recommendations.

UNIFIED THEORY INC, Woodbury, MN — **JUNE 2019 - SEPTEMBER 2021**

Electrical Engineer

- Integrated the Controls system for a new $25M factory construction involving coordination between Controls guidelines for OEM vendors and field contractors.
- Managed a 4-person engineering team designing electrical power and lighting for a $3M feed mill construction while keeping the project under budget and building strong client value.
- Oversaw budgeting and client communications during electrical planning of a $2.5M chiller upgrade project.
- Planned and created extensive reports documenting employee safety implications of hazardous solvents in electrically classified regions and proposed mitigation strategies with detailed project cost estimates.
- Mentored 2 new electrical engineers while building a standardized AutoCAD system for a client's controls engineering division.

DATA SCIENCE PROJECTS

Predictive Analytics – Built a regression model in R to predict health insurance premiums based on health attributes from a population of Americans. Visualized the results using ggplot and achieved 75% predictive accuracy in test datasets.

Cryptography Research - Developed a QR code program featuring public-key encryption security as a free application to serve small businesses with high security use cases for QR codes. Studied Reed-Solomon Error Correction, Galois field arithmetic, and polynomial long division in order to write a QR encoding algorithm in Python with a graphical user interface using the TkInter library. Published a report detailing the project outcomes, earning a 2018 Outstanding Research Award.

Web Development - Designed a website to host future Data Science projects, generative art, and learn about web development. Hosted at https://gbarland.github.io/

Analytics Research – Explored and presented a report on two new Data Science tools to build a strong toolkit for future analytics work: Pandas Profiling, and Great Expectations. These libraries help streamline exploratory data analysis when working with a new dataset and help set up constraints to ensure data cleanliness.

SKILLS

Tools: Python, R, SQL, C, MS Excel, Pandas, Spark, Hadoop, AutoCAD, PLS-CADD, SKM PowerTools, Revit
Techniques: Predictive Modeling, NLP, Exploratory Analysis, Statistical Analysis, Data Visualization