Grant Barland

Business Analytics & Data Science

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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

Analytics Student Consultant

Machine Learning Research for Workforce Optimization Company

- Tasked with automating call center employee evaluations by building tools to analyze phone call transcripts.
- Prototyping NLP models to evaluate the effectiveness of automated evaluation vs. human evaluation.
- Assessing our models ability to generalize across industries and to avoid harmful bias against employees.

Be The Match - Analysis on Ethnic Disparities in Patient Outcomes

- Analyzed 90k patient data to determine what factors contributed to adverse patient outcomes in racially diverse populations.
- Discovered opportunities for the company to intervene and improve patient transplant success rates.

Sentiment Analysis in ML Models 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.
- 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.
- 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 neural network image classifier using Keras to distinguish between images of dogs and cats. This classifier used a ResNet architecture and achieved a top 100 score in a public Kaggle competition.

Natural Language Processing – Explored the BERT transformer library from Google by training a classification model that can determine if a FaceBook post contains appreciation, complaints, or feedback. This model achieved 0.88 f-measure on unlabeled testing data and was a great learning experience about state of the art transformer models.

Cryptography Research - Developed a QR code program featuring public-key encryption security. Studied Reed-Solomon Error Correction, Galois field arithmetic, and polynomial long division in order to write a QR encoding algorithm in Python. Published a report detailing the project outcomes, earning St. Thomas 2018 Outstanding Research Award.

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

SKILLS

Tools: Python, R, SQL, C, MS Excel, Pandas, Spark, Hadoop, AWS Sagemaker, S3, SnowFlake
Techniques: Predictive Modeling, NLP, Exploratory Analysis, Statistical Analysis, Data Visualization, Linear Programming