

# Brett J. Mitchell

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## EDUCATION

**Midwestern State University** | Wichita Falls, TX

Fall 2022 – Spring 2025

*M.S. in Computer Science*

GPA: 4.0

**Midwestern State University** | Wichita Falls, TX

Fall 2018 – Spring 2022

*B.S. in Biology; Minor in Chemistry (Cum Laude)*

GPA: 3.62

**College Activities:** Upsilon Pi Epsilon Computer Science Honor Society (President), Data Science Research Group.

**Relevant Coursework:** Natural Language Processing, Advanced Software Engineering, Probability & Statistics, Calculus, Advanced Data Structures and Algorithms, Linear Algebra.

## EXPERIENCE

**Data Science Intern - NLP, LLM, Gen AI**

January 2024 – Present

*QuickScout (Oil and Gas SaaS Company)*

- Project 1 – SQL-Producing Chatbot Agent: Leveraged prompt engineering to train OpenAI's pre-trained GPT-3.5-Turbo on a specialized Texas oil and gas dataset to develop an ML pipeline transforming natural language queries into accurate SQL statements (>98% accuracy), then integrated with Langchain to generate interactive geospatial charts visualizing well and lease statistics anywhere in Texas.
- Project 2 – Document Text Extraction: Created an automated NLP document text workflow with Selenium, Chrome WebDriver, PyMuPDF, Regex, and spaCy to ingest oil and gas PDFs, extract important texts, and display to the frontend when utilizing the search bar to eliminate the need for clients' to parse through thousands of PDFs manually.

**Computer Science Graduate Assistant**

August 2023 – Present

*Computer Science Department – Midwestern State University*

- Lead Python lectures covering topics such as loops, functions, and conditionals.
- Tutored NLP concepts in python to 50+ students.

## PROJECTS

**BERT and VADER for Sentiment Analysis of Dallas-Fort Worth (DFW) Sports Teams** | [Link](#)

- Podium Presentation – North Texas Area Student Conference.
- Created a Reddit web scraper to gather ~70,000 of the newest comments from the r/TexasRangers, r/cowboys, and r/Mavericks subreddits to compare sentiment of DFW sports teams, aiming for high accuracy in grasping fan sentiment.
- Employed text preprocessing with regex, data manipulation, and NLP models—BERT (RoBERTa from Hugging Face transformers) to utilizing deep learning for complex contextual analysis with transformers and VADER for simpler rule-based scoring, achieving extremely high levels of accuracy in determining fan sentiment classification with BERT.
- Utilized Matplotlib and Seaborn for visualization, including box plots for scoring distribution, histograms for accuracy confidence levels, and bar charts for frequency distribution comparison between BERT and VADER.

**Random Forest Forecast Model and Exploratory Data Analysis (EDA) for Total Retail Sales Prediction** | [Link](#)

- Generated hypotheses, identified correlating relationships between variables affecting sales, and visualized demographic, payment method, and shopping mall variation on total sales to draw proper conclusions.
- Created an accurate sales forecasting model by utilizing and fine-tuning a Random Forest model to achieve a high  $r^2$  value (0.93) and low MSE (equating to 0.5% of total sales, the target variable).

**ARIMA Forecast Model & Web Application to Predict Auction House Prices & Display Historical Auction Data** | [Link](#)

- Podium Presentation – North Texas Area Student Conference (with Dr. Patrick Mitchell and Michael Ellerkamp).
- An ongoing project that consistently pulls data into an SQLite database, allows a search capability to view any item price flows in the database, and predicts future prices using an ARIMA time-series forecasting model.
- Developed website frontend with Python, backend with Python Flask, and hosted with AWS.

## SKILLS

Languages: Python (Pandas, NumPy, Hugging Face, TensorFlow, PyTorch, VADER, BERT, GPT, SpaCy, Regex, Scikit-learn, Keras, ARIMA), SQL, C++, Java.

Frameworks/Tools: Langchain, AWS, Git, Docker, Linux, Jupyter, Agile, Flask, SQLite, MongoDB, Spark.

Miscellaneous: Computer vision (OpenCV), Embeddings (Bag-of-Words, Word2Vec).

## AWARDS AND ACCOLADES

- Computer Science Graduate Merit Scholarship, President's/Provost's Honor Roll(x4), Biology Department Freshman Man of the Year, Outstanding Academic Freshman Man Finalist, Kirk-Edwards Scholarship.