Townsend Saunders III

Corvallis, Oregon | 480-452-3999 | townsend.saunders3@gmail.com
https://github.com/townsend-saunders3 | linkedin.com/in/townsendsaunders3

Data Scientist II **Reliance Steel and Aluminum** **Cypress, CA** ***Feb 2019 – Sep 2023***

Unified Inventory Management Through Machine Learning

- Pioneered a unified Item Master solution, streamlining inventory management across 50+ Reliance subsidiaries, improving efficiency and reducing costs.
- Collaborated with stakeholders to address inventory challenges using Python, Spark, AWS tools, and Snowflake, setting up end-to-end machine learning pipelines.
- Automated real-time ML model optimization and deployment via AWS Sagemaker.
- Led the company's maiden successful ML project, garnering external recognition and publication consideration.

Real-time Anomaly Detection and Predictive Maintenance for Warehouse Equipment

- Spearheaded a POC for anomaly detection in warehouse machinery, preventing costly breakdowns and hazards.
- Interfaced with supervisors, creating real-time alert systems based on critical telemetry data from 30+ Bosch XDK devices.
- Utilized AWS for data streaming, analysis, and LSTM-based TensorFlow models to predict anomalies, ensuring safety and machine longevity.
- The initiative preempted multiple breakdowns, expanding its application across various warehouses.

Scalable Serverless Machine Learning Application

- Designed a serverless Data Lab web app using AWS tools, Docker, GitHub, Sagemaker, and Python.
- Developed a UI for non-tech users to query the Data Warehouse via Snowflake's Snowpark.
- Established an ML pipeline for time-series data, with visualizations using Streamlit, Plotly, and other tools.
- Enabled large-scale forecasting for 50 companies and created a Data Lake integrating external financial data.

University of California, Berkeley, College of Engineering ***Aug 2015 - Aug 2019***

- *B.S. Engineering Mathematics and Statistics, Computer Science Specialization*

Personal Projects

AI-powered Resume Optimizer Web App

- Developed a web application leveraging OpenAI's GPT-4 model to optimize resumes based on specific job postings.
- The application is designed to analyze job descriptions and modify resumes to highlight relevant skills and experiences, thereby increasing the chances of candidate shortlisting.
- Hosted the application using Streamlit, providing an intuitive user interface for users to input their resumes and desired job postings.
- All project code is publicly available on GitHub for transparency, future collaboration, and improvement.

USA Women’s Wrestling Stats Web App

- Created a web app for USA women’s wrestlers to upload, view, and analyze their match statistics.
- Users can link video of tournaments, view match performance, and uncover what helps them win matches.
- Most Women’s Wrestlers have no sports analytics offered to them by their organization. This app serves to help a historically underserved market and democratize sports analytics.

AI-driven Personalized Nutrition Tracker Web Application

- Developed a nutrition tracking web application using OpenAI's GPT-4 model, focusing on promoting healthier eating habits.

- The app is designed to accept natural language inputs from users regarding their daily food and drink intake along with basic demographic data (like weight, age, sex, etc.).
- Leveraging AI, the app parses these inputs to identify specific foods, types, and quantities consumed.
- It subsequently generates comprehensive nutrient data for each item, including amino acids, macronutrients, micronutrients, minerals, and vitamins.
- Through an analytical dashboard, users receive a visual summary of their daily nutritional intake, highlighting areas where their diet is deficient or excessive.
- The app is hosted using Streamlit and the code is available on GitHub for public access and contribution.

Smart Agriculture: Automated Irrigation System

- Engineered a Raspberry Pi-based automated irrigation system with the objective of optimizing water usage in agriculture.
- Incorporated a soil moisture sensor to continuously monitor soil conditions and send data to AWS for real-time analysis.
- Set up an alert mechanism that triggers notifications when soil dryness reaches a specified threshold, enabling timely irrigation.
- Future enhancements for the project include the integration of multiple sensors for a comprehensive environmental analysis (including nitrogen, oxygen, temperature, wind, and sunlight intensity).
- Plans also include implementing a smart drip irrigation system that uses valves controlled by real-time moisture readings, further automating, and optimizing the irrigation process.

Technical Skills

Programming Languages & Libraries

- Python (NumPy, Pandas)
- JavaScript (React)
- Java
- Julia
- SQL
- C
- Ruby
- HTML
- MATLAB

Machine Learning & Natural Language Processing

- TensorFlow
- PyTorch
- Open AI API/ Chat GPT/ GPT4
- Hugging Face
- spaCy
- Machine Learning techniques
- NLP (BERT, Transformers, Hugging Face)

Data Management & Cloud Platforms

- Big Data (Spark, Snowflake)
- AWS tools
- ML pipelines (AWS tools)

DevOps & Version Control

- Docker
- Linux/Unix
- GitHub

Professional Skills

Management & Leadership Skills

- Agile
- Team Leadership
- Cross-functional Collaboration
- Mentoring
- Stakeholder Communication
- Project Management

Analysis & Decision-Making Skills

- Market Analysis
- Data-Driven Decision Making
- UX Design
- Business Impact Analysis
- A/B Testing
- Causal Inference