

# KAYHAN ERYILMAZ

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## EDUCATION

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### The University of San Francisco

*Master of Science in Data Science*

San Francisco, CA

July 2022 – 2023

### The University of Illinois at Urbana-Champaign

*Bachelor of Science in Industrial Engineering*

*Minor in Computer Science, Minor in Statistics*

Champaign, IL

2016 - 2020

## WORK EXPERIENCE

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### Pendulum (AI & NLP)

*Data Scientist*

San Francisco, CA

November 2022 - Present

- Implemented a multilingual XLM-RoBERTa classification model that labeled relevant content for risk intelligence and narrative analysis of topics such as inflation and wage exploitation with an accuracy of 85% and an F1 score of 0.91, from the previous baseline of 76% and replacing the needs of individual monolingual models of English, Turkish, Chinese, and Spanish
- Performed multilingual sentiment analysis on Twitter content used for risk intelligence and narrative analysis using a finetuned XLM-RoBERTa model of 11 languages with an accuracy of 89% and an F1 score of 0.85
- Developing a large language model-based chatbot powered by GPT4 and LangChain, for Pendulum customers and analysts to interact with to perform ad-hoc requests and query creation

### TurkNet Communication Services Inc.

*Data Scientist*

Istanbul, Turkey

October 2020 – April 2022

- Reduced complaints by 40% regarding poor customer service through an ensemble of NLP models conducting sentiment analysis and name-entity recognition on customer support tickets to create executive summaries
- Minimized the average “first response time” from 31 to 10 minutes of corporate support tickets through a Tableau dashboard displaying active tickets and historical key performance indicators such as average and max first response time, resolution time, and customer satisfaction score
- Developed a logistic regression model for churn prediction with an 84% accuracy, reducing the customer churn rate by 18% and deprecating the previously used heuristic-based approach
- Implemented a monitoring stack using Grafana and InfluxDB to track regional network ping data of over 500 cities in Turkey and send alerts in case of any network spikes or anomalies, reducing network downtime by 19%
- Collaborated in the development of a PySpark-based data ingestion pipeline for processing daily network data with a size of 20TB of over 350,000 residential customers and 2,500 corporate customers

### Spraying Systems Co.

*Data Scientist*

Champaign, IL

August 2019 – December 2019

- Predicted spray nozzle failures from pressure data using an Isolation Forest model with an accuracy of 91%, from the previous baseline of 77% accuracy and highlighted the economic impact to the R&D department through a financial report detailing the return on investment in the estimated 6-year payback, as a student data scientist

## PROJECTS

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### Dim Summary: Opinion Summarization Restaurant Reviews

- Developed a generative language model that summarizes user reviews of a given restaurant, using a fine-tuned T5 model, with a resulting ROGUE-1 score of 0.25
- Created a Yelp web scraping pipeline using Spark and Airflow to extract and preprocess reviews using NoSQL and stored them within a MongoDB collection containing over 1000 San Francisco restaurants and 35000 reviews
- Pitched the product and gained interest of venture capitalists through a web application using Flask on AWS Elastic Beanstalk where users can search for a restaurant and generate separate summaries for different types of reviews

## SKILLS & INTERESTS

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**Programming Languages:** Python, SQL, NoSQL, Java, R

**Tools:** PyTorch, HuggingFace, PySpark, AWS (EC2, Athena, S3, Elastic Beanstalk), Snowflake, Databricks, Flask, Elasticsearch, MongoDB, Airflow, Tableau, Docker

**Coursework:** Machine Learning, Deep Learning (PyTorch), Linear Regression, Data Structures, Design of Experiments (A/B Testing), Relational Databases (SQL), Distributed Computing & Systems (Spark & NoSQL)