Alexandra Tulchinsky

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WORK EXPERIENCE

Nokia - Software Engineer - AI/ML   SEPTEMBER 2023 - AUGUST 2024
- Developed and deployed a scalable enterprise search solution for licensing by fine-tuning a Large Language Model (LLM) using internal enterprise data, enabling interactive querying and summarization features. The solution reduced document search and compilation time from several hours to minutes, achieving a 95% increase in response accuracy and an 80% reduction in hallucinations through prompt engineering, supervised learning, and Low-Rank Adaptation (LoRA).
- Optimized and streamlined revenue allocation across diverse business units using Gen AI. Leveraged Hugging Face transformers library, NLP auto-tagging processes, and MS Power Automate to fully automate the workflow. The manual and error-prone process that took 4-6 weeks to complete now takes 2-5 minutes. In addition, achieved a 30% reduction in errors.
- Awarded the Nokia Business Impact Award for delivering innovative AI-driven solutions that significantly enhanced operational efficiency and accuracy.

Lumentum - Data Scientist   JANUARY 2023 - APRIL 2023
- Improved the speed and bandwidth of the Wavelength Selective Switch (WSS) product lines by predicting the direction of light waves using optical data, reducing processing time by 10%.
- Created and deployed an artificial neural network on Azure that predicts light steering in WSS products, achieving an accuracy of 90%.
- Collected, curated and analyzed networking data to provide insight into potential equipment failures, thereby prolonging equipment health and improving overall equipment lifespan.
- Advised key clients (Ciena, HANA and Fujitsu) on their next version of product releases by collecting their feedback and prioritizing new features & capabilities.

Lumentum - Data Systems Analyst   MAY 2022 - AUGUST 2022
- Communicated between the R&D, IT, Data Science and Analytics teams to understand business requirements and desired user experience in terms of capabilities and features.
- Collaborated with external vendors (AnyDesk and ConnectWise) on findings and required improvements in future product releases.
- Leveraged feature-by-feature usage data and end-user survey data to gain insight into consumer needs and predict third-party application use, resulting in 1.5 hours of time savings per user/day by optimized use of the software.
- Developed data-driven solutions by mining and analyzing consumer usage data, reducing internal third-party software costs by $25k.

KEY PROJECTS

Light Steering Predictor - Phase Calibration Model *(Lumentum)*
- Extracted diverse optical data sets from the UDB database.
- Cleansed and pre-processed the datasets using Pandas, NumPy, Scikit-Learn, and Anapy - *optical library developed by Lumentum*.
- Conducted in-depth exploratory data analysis and developed predictive models using a combination of statistical algorithms and advanced neural networks.
- Utilized Seaborn and Tableau to create insightful data visualizations on accuracy, loss, power shifts and phase changes.

Dental Clinic using Data & Cloud - Clinic Web Application
- Collaborated with a team to develop a full stack dental business management web application using the Django framework. The application enables patients, hygienists, and doctors to log in, schedule appointments, view available treatments, and make payments.
- Used REST APIs and SQL queries to perform CRUD operations on the clinical data stored in the PostgreSQL database.
- Hosted and deployed the application on Heroku.

Customer Feedback- Amazon Product Recommendation
- Scraped product data from Amazon using BeautifulSoup4.
- Cleansed and pre-processed the dataset and performed EDA using NumPy and Pandas.
- Performed sentiment analysis using a variety of unsupervised and self-supervised NLP models.
- Visualized and analyzed the data using Seaborn to draw insights and conclusions about whether a consumer should purchase the product.

Better Digital Audience Engagement - YouTube Data Analysis
- Scraped channel data using YouTube API.
- Performed data wrangling and transformed the unstructured data (JSON) into a structured form (csv, tables).
- Analyzed pain points of the channel and suggested what areas needed improvement to increase revenue and consumer traction.

CORE TECHNOLOGIES

Data Science, AI & Machine Learning: Azure Machine Learning Studio, Azure Cognitive Services, AWS SageMaker, AWS Comprehend, Databricks, NumPy, Pandas, Matplotlib, Seaborn, Keras, Tensorflow, PyTorch, JAX, Scikit-Learn, spaCy, Scrapy, OpenCV, Spark MLlib

Generative AI: Azure OpenAI, Hugging Face, LangChain, Transformers, TRL, BitsandBytes, PEFT, DeepSpeed, CUDA Toolkit Vector Databases: ChromaDB

ETL and Data Streaming: Spark Streaming, AWS Kinesis

Big Data Processing: Hadoop, Hive/Spark, PySpark

SQL and NoSQL Databases: PostgreSQL, MongoDB, Firebase

Analytics & Data Visualization: Tableau, Power BI

Cloud Computing: Azure, AWS, GCP, Heroku

Programming languages: Python, Java, TypeScript, JavaScript, Go, C/C++, Scala

Web and API Development: React.js, Next.js, Bootstrap, HTML, CSS, SCSS, FastAPI, Flask, Django, Node.js, GraphQL, RESTful APIs, gRPC

Containerization and Orchestration: Docker, Kubernetes

Web Servers and Load Balancing: Nginx, Apache

Automation and CI/CD Tools: Jenkins, CircleCI

Version Control Systems: SVN, Git

Testing: JUnit, Robot, Selenium, PyATS

Remote Access and File Transfer Protocols: SSH, Telnet, Netconf, TFTP, SCP, Rsync

Dev & Office Tools: GitHub, Jira, Confluence, Bitbucket, Microsoft Office, G-Suite, Jupyter Notebook

EDUCATION

University of Ottawa - Bachelor of Science with Honors in Computer Science   SEPTEMBER 2020 - DECEMBER 2024

CERTIFICATIONS

AWS Machine Learning Speciality (Udemy)   SEPTEMBER 2023
Azure Data Science Associate (DP-100)   AUGUST 2023
Azure Data Fundamentals (AZ-900)   JUNE 2021

AWARDS

Nokia Business Impact Award   DECEMBER 2023