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EXPERIENCE

Data Analyst for Institutional Research

August 2023 – Present

Cedar Crest College
Allentown, PA

- **Designed and developed** multiple interactive dashboards in Power BI that informed strategic campus initiatives, leading to better reporting efficiency across 10+ departments in addition to impacting over 3,000 students.
- **Administered** comprehensive course evaluation survey program serving 200+ courses per semester, implementing strategic outreach strategies that increased response rates from 40% to 60%, while also automating reporting workflows.
- **Oversaw comprehensive federal compliance reporting** including IPEDS submissions, maintaining 100% accuracy with Department of Education requirements while implementing automated data validation systems that reduced manual processing time by 50%.

PROJECTS

Customer Feedback Sentiment Analysis Tool (Freelance Project)

- Collaborated with a small online retailer to develop a Python-based sentiment analysis tool that automatically categorized and summarized customer feedback from surveys and product reviews.
- Utilized natural language processing libraries to identify key themes and sentiment trends, providing actionable insights to improve customer service and product offerings.
- Automated weekly reporting, reducing manual review time by over 50% and enabling the client to quickly address negative feedback and enhance customer satisfaction.

Retail Sales Forecasting Dashboard (Freelance Project)

- Collaborated with small e-commerce retailer to design and implement comprehensive predictive analytics dashboard using Python, Power BI, and SQL, delivering actionable insights for a business generating \$500K+ in annual revenue across multiple product categories
- Developed ensemble machine learning models (Random Forest, ARIMA) to forecast weekly sales with 85% accuracy, enabling proactive inventory planning that reduced stockouts by 25% and improved cash flow management for seasonal product lines.
- Automated end-to-end data collection pipeline integrating point-of-sale systems, Shopify, and Amazon sales platforms, eliminating 20+ hours of manual reporting weekly while reducing data entry errors by 90% and enabling real-time performance tracking.

Multilingual Customer Support Automation (Academic Collaboration)

- Architected intelligent NLP chatbot using Python, TensorFlow, and NLTK to automatically classify and respond to multilingual customer inquiries, reducing response time.
- Deployed production-ready solution on Google Cloud Platform with multi-language support (5 languages) achieving 89% classification accuracy and handling 1,000+ test queries with real-time processing capabilities.
- Implemented advanced preprocessing pipeline with custom tokenization and sentiment analysis features, enabling context-aware responses and reducing false positive classifications by 25% across all supported languages.

Image Captioning & Classification (Academic Project)

- Developed deep learning architecture combining CNN and LSTM networks using PyTorch to automatically generate descriptive captions for images, achieving 78% accuracy on 10,000+ images from the COCO dataset.
- Built containerized microservice architecture on Azure Container Instances with automated model serving capabilities, supporting concurrent image processing requests and seamless model version updates.
- Conducted extensive data augmentation and feature engineering including image preprocessing, attention mechanisms, and vocabulary optimization, resulting in robust performance across diverse image categories and lighting conditions.

Clinical Data Management System (Academic Project)

- Architected comprehensive EHR database system using PostgreSQL and Python to manage patient records, medical histories, and treatment data for a simulated 500-bed hospital network.
- Developed full-stack web application with HTML/CSS frontend and Flask backend, enabling healthcare professionals to perform real-time patient lookups, appointment scheduling, and medical record updates through intuitive user interfaces.
- Implemented advanced data validation and audit trails with automated backup systems and role-based access controls, ensuring data integrity across 10+ user types (doctors, nurses, administrators) and supporting 1,000+ simulated patient records.

Predictive Real Estate Valuation Tool (Academic Project)

- Built end-to-end property valuation platform using Python Flask framework and ensemble machine learning models in Scikit-learn, achieving 92% accuracy in automated residential property appraisals across 50,000+ listings.
- Engineered real-time data integration pipeline connecting Zillow and Redfin APIs with automated ETL processes, processing 10,000+ daily property updates and market trends to ensure dynamic pricing accuracy within 5% of market value.
- Designed responsive web interface with interactive property search, comparative market analysis dashboards, and automated valuation reports, enabling users to generate comprehensive property assessments with neighborhood analytics.

EDUCATION

Master of Science | Data Science

Concentration on Artificial Intelligence

New Jersey Institute of Technology | Newark, NJ

Bachelor of Science | Data Science

Eastern University | St. Davids, PA

SKILLS

Programming Languages: Python, R, SQL, JavaScript, TypeScript, C++, Julia, DAX/M

Data Science & Analytics: Machine Learning, Deep Learning, Natural Language Processing (NLP), Computer Vision, Neural Networks, Ensemble Methods, Statistical Modeling, Predictive Analytics, Feature Engineering, Exploratory Data Analysis, Time Series Analysis, Model Evaluation & Validation

Machine Learning & AI: Supervised/Unsupervised Learning, Classification, Regression, Clustering, Sentiment Analysis, Image Recognition, Hyperparameter Tuning, Model Deployment

Cloud & Platforms: Microsoft Azure, AWS, Google Cloud Platform (GCP), Docker

Data Visualization & BI: Power BI, Tableau, Excel, Interactive Dashboards

Databases: PostgreSQL, MySQL, SQL Server, MongoDB, Data Warehousing, ETL/ELT Processes

Big Data & Tools: Apache Spark, Hadoop, Git, Azure Data Studio, API Integration, Automated Reporting