

WORK EXPERIENCE

deepset.ai
Senior AI Engineer – Solution Engineering

Remote
Mar 2024 - Present

- Integrated Snowflake into deepset-cloud within weeks of joining, enabling agents-based pipelines to seamlessly access large-scale enterprise data through the platform without the need for data migration.
- Developed a RAG-based chatbot system for a market research customer, processing over 15 billion structured and unstructured data points to deliver insights, reducing reliance on external business intelligence and copilot tools.
- Designed and implemented a RAG-based agent system for a financial customer to negotiate missed car loan payments, leveraging multiple agents to automate negotiation workflows and improve customer engagement.
- Contributed to deepset open-source framework Haystack’s by improving core functionalities and enhancing developer tools
- Delivered Text-to-SQL solutions, enabling efficient query generation and integration for enterprise customers, with a focus on robust and scalable performance.
- Worked collaboratively with product and engineering teams to identify and prioritize platform improvements, ensuring they align with customer needs.
- Partnered with product managers, software engineers, and operations teams to identify opportunities for business impact, understand and prioritize requirements, and drive engineering decisions.

BMO US
Lead Machine Learning Engineer – Anti-Money Laundering

Chicago, Illinois
May 2019 - Feb 2024

- Led a team of data scientists in developing an NLP-driven automation tool for narrative generation in government filings, reducing investigation time by 65% and saving over \$1M. The achievement was recognized by the Chief Risk Officer.
- Built an anomaly detection model using Isolation Forest to detect suspicious activities within Hong Kong and Singapore trade finance instruments; defined candidate variables, applied feature engineering, and established performance metrics; reduced false positives by 35%.
- Developed a supervised model aimed at identifying the likelihood of cash structuring using the CART algorithm, resulting in a 75% monthly precision.
- Defined best practices to standardize team coding and operating procedure access to the model, resulting in a more efficient process with fewer errors.
- Led the implementation of a comprehensive Machine Learning model explainability framework, expanding its adoption across external teams to meet regulatory requirements.
- Thought leader and internal consultant resource for cross-departmental teams that could benefit from ML solutions.

BMO US
Data Scientist – Credit Risk

Chicago, Illinois
Aug 2018 - Apr 2019

- Developed a credit default model using DBSCAN for segmentation and best between Random Forest and XGboost for default prediction; applied statistical tests and benchmarks to ensure stability and robustness on unseen data; achieved 20% improvement in accuracy ratio compared to rule-based models.
- Queried terabytes of data from different table schemas and carefully examined candidate variables to overcome the risk of bias and discrimination during credit scoring.

EDUCATION

Carnegie Mellon University
Master’s in Computer Science and Information Technology

Pittsburgh, PA
June 2018

Institut Supérieur de Gestion
Bachelor’s in Economics

Tunis, Tunisia
Apr 2012

SKILLS

- Python, SQL, Java, JavaScript, PyTorch, Haystack, Langchain
 - Flask, Spring, FastAPI, Git, Docker, Kubernetes
 - AWS, Hadoop ecosystem, Apache Spark, Snowflake
- Natural language processing
 - Algorithm design and data structure
 - Predictive modeling and anomaly detection