Mark Kamuda, PhD

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EXPERIENCE

Fidelity Investments - Fraud Risk Data Scientist **2021 - Current**

- Owned the modernisation of a legacy fraud detection systems, leveraging isolation forests, K-means clustering, random forests, and logistic regression to prevent an average loss of $5,000 per week with minimum customer friction.
- Analyzed user behavior data to develop and deploy a high precision real time EFT and wire fraud detection and prevention system that has a maximum capacity over 100 tps.
- Developed and deployed a real time model to identify high risk calls within a 70k average daily call volume, improving customer service, security, and associate experience.
- Developed and deployed a data-driven and explainable baseline fraud risk model that is used by a team of over 30 investigators, uncovering novel insights and increasing the speed of investigations.
- Demonstrated proof of concept LLM workflows for Suspicious Activity Report (SAR) generation.
- Contributed to a cross-functional team environment, coordinating efforts between users, product management, software engineering, and data science units.
- Mentored a junior data scientist and helping them grow with machine learning and software development knowledge.

Applied Research Associates - Computer Vision Research Scientist **2019 - 2021**

- Owned the design and implementation of cutting-edge multi-view geometry reconstruction capabilities using satellite imagery, enhancing an existing system's capabilities.
- Applied open-source machine learning models for swift identification and prototyping of effective solutions.
- Mentored two interns in exploring novel feature extraction methods, contributing to the growth and development of the team.

University of Illinois - Doctoral Student **2017 - 2019**

- Utilized applied machine learning expertise to investigate unique challenges in nuclear security, delivering valuable insights to professionals in the field.
- Led the creation of annsa, an open-source Python package specializing in the construction of synthetic training datasets within the domain of gamma-ray spectroscopy.
- Implemented software development methodologies such as version control, unit testing, and CI/CD to guarantee robust and maintainable software.

EDUCATION

University of Illinois at Urbana-Champaign, Illinois

Doctorate, Nuclear Engineering	**2017 - 2019**
Masters, Nuclear Engineering	**2014 - 2017**
Bachelors, Nuclear Engineering	**2010 - 2014**

SKILLS

- **Software:** Airflow, AWS, Docker, Git, Kafka, ModelOp, QGIS, Snowflake, SQL, Test Driven Development
- **Python:** Keras, Numpy, OpenCV, Pandas, Poetry, PyCharm, PyTorch, scikit-learn, scikit-image, TensorFlow
- **Data Science:** Anomaly Detection, Classification, Clustering, Data Visualization, Dimension Reduction, Explainable Models, Feature Engineering, Time Series Analysis
- **Machine Learning:** Autoencoders, Classical Computer Vision, CNNs, DNNs, Embeddings, Feature Extraction, Gradient Boosted Trees, Graph Neural Networks, Keypoint Extraction, LLMs, Object Detection, Segmentation, Stable Diffusion, Twin Networks