

Drew Worden

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Summary

Seasoned data scientist and machine learning engineer in the financial services industry with a background in applied mathematics, software engineering, and quantitative analytics. Experienced consultant for top banks and financial services companies to implement machine learning pipelines, big data platforms, and generative AI at the enterprise level. Avid open-source and recreational programmer. Extremely passionate about using machine learning research and in solving complex problems and leading teams to do so.

Experience

IBM / American Express | New York, NY

Director of ML & Generative AI / CTO Organization | 03/2024 - Present

- Designed the enterprise standard technical architecture for generative AI at American Express.
- Managed incoming use case teams and shipped over 23 to production.
- Developed an example use case for teams across Amex to use as a guide.
- Designed and developed custom UI kits for internal asset development with generative AI.

IBM / The OCC | Chicago, IL

Big Data / Machine Learning Architect | 11/2023 - 03/2024

- Performed data flow validation and architecture assessments for The OCC and NYSE's data governance initiative across 10 core applications for their new data platform.
- Provided revisions for 6 existing Monte Carlo simulation pipelines to ensure consistency and adaptability to current markets.

IBM / Bank of America | New York, NY

Lead Big Data Platform Developer | 01/2023 - 11/2023

- Developed common big data layer to standardize processes into data lakes.
- Developed 6 Java microservices and deployed to on premise infrastructure. Oversaw data migration for over 5 billion records and maintenance up to 1 million queries weekly.

IBM / Bank of America | New York, NY

Machine Learning / NLP Engineer | 07/2022 - 01/2023

- Developed custom OCR and NLP model pipeline for document classification, field extraction, fraud detection, and transcription models with PyTorch and Spacy.
- Passed FS validation controls on IBM Cloud and AWS and deployed into production.

Pearson Education | Durham, NC

Research Scientist | 08/2021 - 07/2022

- Designed 3 text and time-series fraud models for analysis of plagiarism and exam cheating. Deployed to subset of live Pearson Vue exams in North America.
- Created large-scale data validation API's for Project Everest initiatives across 11 EU countries.

Skills

Languages: Python, Java, Go, C/C++/CUDA, JavaScript/TypeScript, SQL, R, Rust, Scala, Triton

Frameworks: PyTorch, TensorFlow, MLFlow, Sklearn, Flask, FastAPI, React, Svelte, Vue, Spring, OpenCV

Databases: PostgreSQL, MySQL, MongoDB, Couchbase, Oracle, Redis

Tools: OpenShift, Git, Kubernetes, Docker, Kafka

Cloud Services: AWS Bedrock, AWS Forecast, AWS Fraud Detector, AWS Kendra, AWS SageMaker, AWS S3, AWS S3, AWS EC2, GCP Vertex AI, GCP AutoML, GCP BigQuery, GCP Pub/Sub, GCP BigLake, GCP App Engine, GCP Compute Engine, GCP Cloud SQL, Azure AI Search, Azure Databricks, Azure Machine Learning, Azure Open Datasets, Azure

Document Intelligence, Azure OpenAI, Azure Kubernetes Services, Azure Cosmos DB, Azure Data Factory, IBM Watson Discovery, IBM Watson Knowledge Studio

Domains: Machine Learning, Deep Learning, Natural Language Processing (NLP), Time Series Forecasting, Generative AI, Data Governance/Lineage, Big Data Processing

Education

Johns Hopkins University, Applied Physics Laboratory | Baltimore, MD

M.S. Artificial Intelligence | 05/2024

- Research focused on AI compilers and large language modelling.
- Completed in 3 terms while working full time, first to do so in the history of the degree program.

Western Connecticut State University | Danbury, CT

B.A. Mathematics | 05/2022

- Research focused on quantum cryptographic schemes and differential privacy.
- Presidential Merit Scholarship Recipient
- Kathwari Honors Program Member

Certificates

- IBM Certified Professional Architect v6 PLUS IBM Cloud for Financial Services v1
- IBM Machine Learning Specialist - Advanced
- AWS Certified Machine Learning - Specialty
- GCP Certified Machine Learning - Specialty

Awards

IBM Tech Award: Awarded for being in the top 0.5% of technical contributors at IBM, specifically for generative AI and machine learning research.

Publications

1. D. Worden, A Homomorphic Lattice-Based Algorithm for Differential Privacy, *Joint Mathematical Meetings by the American Mathematical Society*, 2020
2. D. Worden, Classifier-Resistant Video Steganography Using Homogeneous Block Selection, *Joint Mathematical Meetings by the American Mathematical Society*, 2021