Nathan Watkins

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Summary

Strategic data scientist and former actuary with deep experience in fraud risk analytics, BSA/AML supervision, and model risk management and governance. Recognized for building high-impact tools—from automated reporting systems and machine learning models to interactive R/Python dashboards—that strengthen compliance, inform policy, and support supervisory decision-making. Passionate about data storytelling and responsible AI innovation. Skilled in Python, R, SQL, and advanced visualization platforms. Seeking to drive senior-level analytics and risk insights in in-person or hybrid roles in NYC.

Experience

Senior Risk Analyst, Fraud Analytics

Federal Housing Finance Agency, Washington, DC/New York, NY • May 2024 – Present

- Built FHFA's first enterprise BSA/AML fraud monitoring system, integrating monthly SAR loan-level data from Fannie Mae and Freddie Mac with GTO overlays, macroeconomic indicators, and an internal SQL database to surface supervisory AML risks in combined $8+ trillion portfolios.
- Developed dynamic SAR cycle-time metrics, GTO exposure reports, and geospatial risk visuals using Jupyter, Plotly, and matplotlib, enhancing oversight of filing timeliness and informing supervisory planning and annual Reports of Examination.
- Proposed and designed supervised learning models to predict fraud-related and money-laundering losses across a $20B+ loan segment, exploring classification methods including logistic regression and novel AML-relevant features.
- Created internal analytics websites using Quarto and R Shiny to deliver real-time suspicious activity trend visualizations and automate reporting; redesigned FHFA's fraud and financial crimes page to centralize AML resources for examiners and policymakers.
- Led contingency migration from Tableau to Power BI in anticipation of license cuts, rebuilding AML/fraud dashboards to ensure uninterrupted compliance reporting capabilities.
- Maintained AML surveillance workflows during a 2-FTE staffing gap by automating cleaning, slicing, and export tasks in Python, ensuring uninterrupted fraud/SAR reporting for examiners.
- Earned promotion to Senior Data Scientist in the newly created Data Science & Automation Branch (effective October 2025); recognized for automating fraud monitoring and AML workflows and tasked with boosting analytics support to exam teams using data engineering, warehousing, and ML tools.

Senior Examination Specialist, Modeling

Federal Housing Finance Agency, Washington, DC • Mar 2020 – May 2024

- Monitored high-risk "core models" at regulated entities (credit, capital, AVMs, underwriting, etc.), curating risk intelligence using the CAMELSO framework for internal and exam team use.

- Built interactive R Shiny dashboards to visualize model interdependencies, AI/ML usage, and output forecasts; tools informed supervisory priorities and included custom features.
- Cut report production time in half by transforming qualitative assessments into reproducible, data-rich dashboards using Tableau and R, shaping year-end reports of examination.
- Co-authored FHFA Advisory Bulletin 2022-03 and independently authored a supervisory letter on ChatGPT/LLMs, guiding responsible AI use aligned with Executive Orders and FHFA policy.
- Proposed an internal LLM-powered regulatory knowledge base to meet Congressional goals under budget constraints; delivered technical and policy recommendations to leadership.

Senior Fintech and Innovation Analyst

Federal Housing Finance Agency, Washington, DC • Dec 2023 – May 2024 (50% Detail Role)

- Drafted FHFA's internal AI permissible use policy for 700+ employees; launched agency-wide AI Steering Committee and collaboration channels to guide adoption.
- Built and led AI trainings for agency TechSprint, reducing vendor costs by $40K while increasing cross-divisional engagement with generative AI tools.

Actuary

Horizon Actuarial Services, Washington, DC • Jan 2017 – Mar 2020

- Led annual actuarial valuations for 8 multiemployer pension plans (e.g., trades, MLB, NHL) with $10B+ in assets; performed data cleaning, modeling, and regulatory report production.
- Supported trustees with cost analyses and forecasts for collective bargaining, presenting scenarios informed by interest rate and workforce trends.
- Piloted a new valuation prototype using Excel, Access, and Power Query to replace legacy software, proposing a $20K/user savings versus proprietary alternatives.
- Created MS Office add-ins for 20+ actuaries to streamline valuation report editing, improving quality control and saving hours per user annually.
- Attained the Associate of the Society of Actuaries (ASA) credential in 2019.

Teacher, English Language and Literature

Chungdahm Learning, Seoul, South Korea • Aug 2014 – Jun 2016

Education

M.S. Computational Data Analytics

Georgia Institute of Technology, 2023

- **Capstone:** Designed and deployed interactive dashboards and predictive models to compare pay equity, employee engagement, and workforce composition at FHFA versus peer financial regulators using FedScope and FEVS datasets covering 1M+ federal employees. Applied regression, ensemble models (random forest, gradient boosting), and Gini coefficient analysis to identify predictors of salary and inequality; findings directly informed workforce decisions.

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B.A. Mathematics & Economics, Minor in Statistics

University of Pennsylvania, 2013