

Matt Oremland, PhD

Director, Enterprise Data

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PROFESSIONAL SUMMARY

Data architecture and analytics leader with 10+ years of experience architecting enterprise data platforms, building analytics capabilities, and driving business value from data in pharmaceutical and life sciences organizations. Proven expertise designing and implementing scalable data platforms (Snowflake, Databricks, AWS) that support structured and unstructured data across regulated operations. Strong background in data governance frameworks, ETL/ELT pipelines, and delivering measurable improvements through predictive analytics. Experience managing cross-functional teams, vendor relationships, and ensuring compliance with GxP and FDA regulatory requirements in pharmaceutical manufacturing and quality operations.

PROFESSIONAL EXPERIENCE

Redica Systems

2024 – Present

Director, Data Strategy & Analytics

Remote

- Led enterprise data strategy and architecture for pharmaceutical clients (Eli Lilly, Merck, ProQuality Network), designing reference data architecture from scratch to harmonize multi-source data including regulatory intelligence, quality metrics, and operational data flows
- Built scalable data platform using Snowflake that supports both structured and unstructured data (FDA 483 text, inspection reports, quality metrics), implementing ETL pipelines, data quality controls, and governance frameworks that ensure data integrity and compliance with FDA regulatory standards
- Developed production LLM classifier (OpenAI API) that processes unstructured regulatory data and generates structured insights—designed data flows from ingestion through model inference to analytics output, ensuring secure, auditable, and performant architecture
- Drove measurable business value from data by building risk-scoring models that enabled clients to optimize quality unit resource allocation, proactively identify compliance risks, and improve regulatory intelligence—moved beyond traditional dashboards to deliver predictive analytics that informed strategic decisions
- Established right-sized data governance frameworks including data stewardship roles, metadata management, data quality standards, and audit documentation that balanced regulatory compliance requirements with operational agility
- Collaborated cross-functionally with client stakeholders, data engineering teams, and executive leadership to identify high-impact use cases, communicate technical concepts effectively, and align data initiatives with business goals

Tidal Wave Analytics LLC

2023 – Present

Consulting Data Scientist

Saratoga Springs, NY

- Architected and deployed production ML systems using Azure Databricks for Paradigm, designing end-to-end data pipelines that integrated data from multiple source systems, processed text and numerical features, and delivered nightly predictions to operational workflows
- Built data infrastructure and analytics capabilities for Denari using cloud platforms, implementing data ingestion from external sources (IRS, state tax authorities), designing data repositories for document corpus, and enabling RAG-based analytics using HuggingFace and PyTorch
- Drove business value through predictive analytics—quote fingerprinting model enabled Paradigm to automatically group quotes into projects, improving operational efficiency and unlocking new business intelligence capabilities across the organization

Gilead Sciences

2023 – 2024

- Defined and executed enterprise data and analytics strategy for Medical Affairs organization, architecting centralized data lake as single source of truth that consolidated disparate data sources across commercial, medical, and operational functions
- Designed and implemented scalable data repositories and pipelines supporting both real-time and batch processing, ensuring data integrity, security, and compliance with FDA regulatory requirements and internal governance standards
- Extended data architecture and analytics capabilities to support cross-functional stakeholders including Commercial, Regulatory Affairs, Quality, and Medical Affairs leadership—mapped end-to-end data flows and optimized data integration across enterprise systems
- Built and scaled business intelligence platform using Spotfire, managing internal BI team and delivering actionable dashboards that enabled data-driven decision-making across commercial and medical operations
- Established comprehensive data governance framework including data stewardship, metadata management, data quality standards, and audit readiness for regulatory inspections
- Led team of dashboard developers and analysts, fostering culture of continuous improvement and effectively communicating insights to executive leadership and non-technical stakeholders

Takeda Pharmaceuticals

2021 – 2022

*Associate Director, Digital & Data Science**Lexington, MA*

- Led digital transformation and data science initiatives across manufacturing and quality operations, architecting data pipelines and repositories that supported predictive analytics, real-time monitoring, and operational reporting
- Deployed AI/ML models in production for manufacturing forecasting, quality risk detection, and process optimization—partnered with data engineers and IT to ensure models were scalable, secure, and compliant with GxP requirements
- Served as Spotfire system administrator, designing data architecture, managing integrations with manufacturing systems (ERP, MES, LIMS), implementing user access controls, and ensuring compliance with 21 CFR Part 11
- Built business intelligence platforms that delivered real-time insights to manufacturing, quality, and supply chain stakeholders—enabled self-service analytics while maintaining governance and data quality standards
- Led cross-functional teams across Manufacturing, Quality, IT, and Regulatory to map operational data flows, identify high-impact analytics use cases, and drive continuous improvement in trial execution and operational efficiency
- Managed team of data scientists and statistical analysts, establishing best practices for model development, validation, and deployment in regulated pharmaceutical environment

Regeneron Pharmaceuticals

2016 – 2021

*Senior Process Data Scientist**Rensselaer, NY*

- Architected automated data pipelines for biopharmaceutical manufacturing, implementing ETL processes for ingestion, cleaning, and transformation of data from multiple source systems including ERP, MES, and laboratory systems
- Developed and deployed predictive models (ensemble methods, PLS, PCA) that drove measurable improvements in manufacturing operations—automated limit calculations reduced manual effort by 80%, feed optimization improved yields, and quality prediction models reduced batch failures
- Designed data repositories and data models supporting both operational reporting and advanced analytics, ensuring data quality, lineage tracking, and audit trails to support GxP compliance and regulatory submissions
- Collaborated with Quality Assurance, Manufacturing, Process Development, and IT teams to integrate analytics capabilities into operational workflows and enable data-driven decision-making across the organization
- Championed use of automation and predictive analytics to enhance manufacturing execution, moving beyond traditional monitoring dashboards to uncover hidden patterns and inform strategic process improvements

EDUCATION**Doctor of Philosophy (PhD) in Mathematics**

2014

Virginia Polytechnic Institute & State University

Dissertation: Optimization and control methods for agent-based models in biological systems. Research involved architecting complex computational models, designing data structures for large-scale simulations, and applying optimization algorithms.

SKILLS & TECHNOLOGIES

Data Architecture & Cloud Platforms: Enterprise Data Architecture (10+ years) • Azure (Databricks) • AWS (S3, data storage) • Snowflake • Data Lake Design • ETL/ELT Pipelines • Data Modeling • Real-time & Batch Processing

Analytics, BI & AI/ML: Business Intelligence Platforms • Spotfire (System Admin) • Sigma • Predictive Analytics • ML Model Deployment • Scikit-Learn • TensorFlow • PyTorch • HuggingFace • OpenAI API • Random Forest • Ensemble Models

Life Sciences & Regulatory: Pharmaceutical Manufacturing • Quality Operations • GxP Compliance • FDA Regulations • 21 CFR Part 11 • Data Integrity • Regulatory Inspections • Audit Readiness

Data Governance & Compliance: Data Governance Frameworks • Data Stewardship • Metadata Management • Data Quality Standards • Security & Access Controls • GDPR Awareness • Audit Trails

Technical & Programming: Python (Advanced) • SQL • Pandas • Data Pipeline Design • System Integration • Database Design • API Integration

Leadership & Strategy: Team Leadership (3-7 direct reports) • Data Strategy Development • Cross-Functional Collaboration • Stakeholder Management • Executive Communication • Change Management

PRESENTATIONS & PUBLICATIONS

- CHPA Regulatory, Scientific & Quality Conference (2025) — Solo Presenter: The Impact of AI on FDA-Regulated Industries
- Redica Systems Webinar (2025) — Solo Presenter: From Reactive to Proactive: Leveraging AI/ML to Improve the Quality Unit
- ISPE Annual Meeting & Expo (2025) — Solo Presenter: Navigating FDA Compliance - Outsourcing Facility Inspections

PUBLICATIONS

- "Optimization and control of agent-based models in biology: a perspective" — Bulletin of Mathematical Biology, 2017
- "A computational model of invasive aspergillosis in the lung and the role of iron" — BMC Systems Biology, 2016