

Reyann K. Larkey, Physics PhD

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EDUCATION

Montana State University

Doctor of Philosophy, Physics

Bozeman, MT

Aug. 2018 – May 2022

Montana State University

Master of Science, Physics

Bozeman, MT

Aug. 2016 – May 2018

Benedictine College

Bachelor of Science, Physics & Astronomy

Atchison, KS

Aug. 2012 – May 2016

EXPERIENCE

commonFont

Solutions Architect, Solutions & Growth

Bozeman, MT

October 2025 – Present

- Lead the Engineering and AWS practices at commonFont, overseeing training, prioritization, and delivery of client-facing and internal solutions.
- Mentored five teammates spanning Salesforce onboarding, codebase ownership handoff, and AWS architecture coaching for a senior SWE strong in application code but newer to cloud design.
- Establish company-wide development standards, SOPs, and best practices to improve consistency, security, and delivery speed.
- Architected cloud-native GenAI and data platforms on AWS for enterprise clients, owning design through deployment, security, and ongoing operations.
- Deployed production GenAI applications on Amazon Bedrock using Claude-, GPT-, and Gemini-class models with Knowledge Bases, Guardrails, tool/function calling, and Bedrock prompt/context management; applied human-in-the-loop (HITL) feedback and RLHF-informed tuning to improve response quality.
- Engineered enterprise RAG pipelines on Amazon OpenSearch and FAISS — covering ingestion, chunking, embeddings, and retrieval optimization — for client document intelligence, including federal healthcare use cases.
- Measured agent and model performance through gold-standard test sets and accuracy studies, validating agent traces across accuracy, faithfulness, tone, sentiment, latency, and TTFT with HITL feedback loops.
- Shipped a production full-stack application encompassing a React frontend with SSO authentication, REST API backend, ETL pipeline, and PostgreSQL database schema, deployed on Docker and AWS ECS Fargate via CI/CD.
- Hardened PII/PHI handling with IAM-aligned access controls and HIPAA-aware federal/enterprise compliance standards for regulated client delivery.

Business Analyst

Jan. 2024 – September 2025

- Owned and evolved core enterprise platforms (Salesforce, Tableau, AWS-based data pipelines), aligning business strategy with technical execution.
- Designed internal AWS data infrastructure including S3 data lakes, Glue ETL pipelines, Athena query layers, Amazon Kinesis streaming paths, SageMaker Feature Store, IAM, monitoring, and cost-optimized architecture.
- Trained and deployed a customer churn prediction model for a leading enterprise healthcare supply company using AWS SageMaker, benchmarking Random Forest, XGBoost, and additional classifiers via scikit-learn and TensorFlow; applied SHAP-driven feature analysis and ROC-AUC validation; results presented at an internal company conference.
- Performed extensive financial analysis for a healthcare retailer — building KPI frameworks, running hypothesis tests on business and behavioral metrics, and delivering recommendations that informed leadership decisions.
- Partnered with finance teams to design and maintain revenue tracking and financial reporting data pipelines, ensuring data accuracy and timely delivery of earned revenue metrics.
- Collaborated with engineering, delivery, and leadership to define technical roadmaps and prioritize platform enhancements.
- Migrated the company to a new company-wide project management system, ensuring data integrity, system configuration, and successful user adoption.
- Expanded role scope to include cloud architecture, AI systems, and enterprise platform responsibilities, leading to the creation of a Solutions Architect position.

Solutions Consultant

Dec. 2022 – Dec. 2023

- Integrated custom data pipelines within Medallia, overcoming platform ETL limitations and client IT constraints in enterprise environments.
- Automated data dictionary and technical specification generation using Python, eliminating over 100 hours of annual manual effort.
- Advised clients on solution design decisions aligned with business objectives, data constraints, and system capabilities.
- Managed end-to-end technical project scope, coordinating priorities across internal teams and external stakeholders.

ACADEMIC & RESEARCH EXPERIENCE

Montana State University

Bozeman, MT

Postdoctoral Researcher

May 2022 – Dec. 2022

- Analyzed multi-source atmospheric time-series datasets with Python, SQL, R, and Tableau — covering cleaning, exploratory analysis, statistical modeling, and machine learning — to produce decision-grade insights on lightning behavior; authored 2 peer-reviewed publications in the Journal of Geophysical Research and Geophysical Research Letters.
- Coordinated operations for an NSF-funded research project across interdisciplinary teams to meet deadlines and analytical deliverables.

PhD Candidate

Aug. 2016 – May 2022

- Built end-to-end data analytics workflows in Python, R, SQL, and Tableau on multi-sensor atmospheric datasets spanning 10+ years of global thunderstorm observations (terabytes of files) — including ingestion, cleaning, feature construction, exploratory analysis, and statistical modeling — to convert raw field measurements into scientific insights.
- Developed HDBSCAN-based clustering and tracking algorithms in Python to detect and classify thunderstorm formation patterns across multi-sensor datasets — a novel classification approach on greenfield domain data.
- Applied rigorous statistical methods and hypothesis-driven analyses in peer-reviewed research linking lightning observables and high-energy radiation measurements to measurable physical outcomes.
- Optimized instrument placement and performance by analyzing field-deployment datasets from international measurement campaigns.
- Constructed balloon-based instrumentation and power systems (including PCB design) that generated the high-resolution multi-channel datasets underpinning the analytics above.
- Communicated complex analytical and statistical findings to technical and non-technical audiences through peer-reviewed publications, conference presentations, and collaborative research reports.
- Advanced cross-institutional research collaborations and supported new funding proposals.

TECHNICAL SKILLS

Languages: Python, SQL, R, JavaScript, HTML/CSS, React

BI & Analytics: Tableau, Salesforce, Medallia, Qualtrics, Exploratory Data Analysis, Hypothesis Testing, Experimental Design, Time-Series Analysis, Statistical Modeling

AI / GenAI: Amazon Bedrock (Claude, GPT, Gemini), Knowledge Bases, Guardrails, tool/function calling, prompt/context management, RAG, Amazon OpenSearch, FAISS, HITL, RLHF, LLM evaluation, model-agnostic architectures

Machine Learning: scikit-learn, TensorFlow, XGBoost, HDBSCAN, SHAP, feature engineering

Cloud & MLOps: AWS (ECS Fargate, IAM, S3, Glue, Athena, Kinesis, SageMaker, Feature Store, CloudWatch, Bedrock), Docker, Terraform, Jenkins, CI/CD

Data & Platforms: PostgreSQL, data pipelines, ETL, Git, GitHub, Jupyter Notebooks, VS Code, Linear, Jira

CERTIFICATIONS

AWS Certified AI Practitioner (AIF-C01)

AWS Certified Developer – Associate (DVA-C02)

AWS Certified Generative AI Developer – Professional (AIP-C01) – In Progress

Medallia Product Certification – Analyst I

Qualtrics CX Technology Consultant

PUBLICATIONS

The Relationship Between Instantaneous Lightning Flash Rates and TGF Production in Thunderstorms. Journal of Geophysical Research: Atmospheres (2021), doi: 10.1029/2020JD034401. Larkey, R.K., Sample, J.G., Smith, D.M., Lapierre, J.L, DiGangi, E., Holzworth, R.H.

Evidence for Extended Charging Periods Prior to Terrestrial Gamma-Ray Flashes. Geophysical Research Letters (2019), doi: 10.1029/2019GL083827. Larkey, R.K., Sample, J.G., Smith, D.M., Briggs, M.S., Lapierre, J.L, Holzworth, R.H.