

# SARA KAY

Boston, MA ▪ 808-354-1535 ▪ sara@sarakay.me  
linkedin.com/in/ssskay ▪ github.com/ssskay

## PROFESSIONAL PROFILE

Dynamic and results-driven data and infrastructure professional with extensive experience in data engineering, analytics, and machine learning. Proven track record in implementing ETL processes and developing innovative data solutions that drive significant business impact and revenue growth. Strong communicator who translates complex systems into actionable insights, with interdisciplinary research published in journals spanning finance, family science, survey methodology, and artificial intelligence. Currently pursuing a Master of Science in Business Analytics at Carnegie Mellon University.

### Core Competencies:

- **Programming and Scripting:** Python, Tableau, Pandas, NLP, SQL, NumPy, Scikit-learn, PySpark, R, Java, JavaScript, React
- **Machine Learning:** LangChain, RAG, embeddings, token optimization, clustering, PyTorch, neural networks
- **Cloud Platforms and Services:** AWS, Databricks, Google Analytics, Google Search Console
- **Certifications:** AWS Data Engineer, AWS Cloud Practitioner

## WORK EXPERIENCE

IBM, Boston, MA

10/2025 - Present

### Site Reliability Engineer II

- Supporting observability infrastructure for HashiCorp Cloud Platform engineers on the Internal Observability Platform Services (IOPS) team, using Datadog, Terraform, and Kubernetes for enterprise-scale production systems
- Built decision tree models and diagnostic diagrams for sensitive data detection system (Keysensus), mapping policy approval logic to identify automation opportunities, recognized with IBM Outstanding Innovation Award
- Migrated production database access from manual security groups to EC2 container, improving access workflows
- Developed Terraform automation for Sensitive Data Scanner across regional pools, eliminating manual intervention

MOODY'S ANALYTICS, Boston, MA

08/2022 – 02/2025

### Data Engineer

- Implemented robust ETL processes using Databricks and PySpark that reduced processing time by 54% for award-winning global compliance tools while ensuring SOC2 compliance.
- Spearheaded a SQL-driven zero-to-one sanctions compliance product that generated \$1.2M in revenue.
- Maintained and optimized enterprise data infrastructure spanning PostgreSQL, SQL Server, and AWS data lakes, while developing RESTful APIs for seamless data accessibility and automated feed delivery systems.
- Engineered an advanced chunking system for data integration with LLM systems using LangChain and GPT-4 Turbo, increasing citation accuracy by 92% and enhancing traceability of information based on Moody's proprietary sources.
- Coordinated between product, engineering, and data teams to implement consistency checks for critical data feeds, ensuring 99.7% compliance with EU privacy regulations and data quality standards.

VERITAS AI, Cambridge, MA

06/2022 – 01/2025

### Artificial Intelligence (AI) Fellowship Mentor

- Worked with students on projects related to artificial intelligence and machine learning based on personal interests and previous experience with coding, ranging from a healthcare chatbot to a middle school science tutor chatbot.
- Created personalized syllabus with readings, weekly exercises, and project milestones to ensure publishable work.

DIGITAL APPLIED LEARNING AND INNOVATION (DALI) LAB, Hanover, NH

04/2022 – 06/2022

### Data Scientist

- Reviewed over 30 hours of voice data for the Tonephoria project to create vocal training exercises for trans users.
- Analyzed lab data from over 1,000 students about skill growth, outreach, and diversity for potential investor presentation, generating visualizations in Jupyter Notebook using libraries including Plotly and Seaborn.

## EDUCATION

**Master of Science**, Business Analytics, **CARNEGIE MELLON UNIVERSITY**, Pittsburgh, PA (Expected 05/2026)

- Relevant Coursework: Statistical Foundations of Business Analytics, Data Analytics in Finance, Modern Data Management, Data Visualization, Ethics and AI, Supply Chain Analytics, Optimization

**Bachelor of Arts**, Computer Science mod. Quantitative Social Science, **DARTMOUTH COLLEGE**, Hanover, NH (06/2022)

- Awards: Graduated with Honors, Academic Citation of Merit, Finalist in TuckLAB Entrepreneurship Challenge, First-Year Emerging Leader, College Honor List 2021

## PUBLICATIONS & PRESENTATIONS

### Midwest Association for Public Opinion Research (MAPOR) Conference

Kay, S. (2025). Missing Voices in the Feedback Loop: How Traditional Survey Methods Systematically Underrepresent Generation Z and LGBTQ+ Communities in Midwest Policy Research. *Paper presentation*.

### Psychology of Technology Conference

Kay, S. (2025). AI as a Resilience-Builder: Restoring Meaning After Job Loss Through Purpose-Driven Technology. *Poster*.

### Family Focus Methods and Measures in Family Science

Gan, L., & Kay, S. (2025). Improving family science methods: The total survey error approach. *NCFR Report, Summer 2025*. <https://www.ncfr.org/ncfr-report/summer-2025/focus>

### Applied Finance Letters

Gan, L., & Kay, S. (2025). Financial Knowledge, Health Factors, and Social Support: Determinants of Household Savings Behavior in the U.S. *Applied Finance Letters*, (14), 58-79. <https://ojs.aut.ac.nz/applied-finance-letters/article/view/962/209>

### Journal of Family and Consumer Science

Gan, L., Harris, K., Gray, B., Lawson, D., & Kay, S. (2025). The Association of Leadership Academy Participation on AAFCS Member Engagement: A Social Exchange Approach. *Journal of Family and Consumer Sciences*, 117(3), 1-8.

## BOARD MEMBERSHIPS

**TAU CORPORATION**, Hanover, NH

**09/2022 – Present**

### Member-at-Large

- Strengthened alumni engagement through targeted communications campaigns and organized networking events, increasing participation by 25% year-over-year with special projects, including alumni database modernization
- Created mentorship opportunities to assist with internship placements for undergraduate members.

**THE PRAYER ROOM AT DARTMOUTH**, Hanover, NH

**12/2022 – 02/2025**

### Treasurer, Data Analyst, and Tech Specialist

- Implemented donor analytics platform that identified engagement patterns, leading to targeted outreach campaigns.
- Prepared and filed nonprofit tax documentation, including Form 990, ensuring compliance with IRS regulations
- Collaborated with executive leadership to develop annual budgets and forecast financial needs

**CAMPAIGN FOR TOBACCO-FREE KIDS**, Washington, DC

**01/2019 – 03/2021**

### Executive Board

- Represented youth perspective at congressional briefings and FDA public comment sessions, providing testimony on the impact of flavored tobacco products on teens.
- Organized and facilitated youth leadership training workshops, empowering over 50 teen advocates with advocacy skills, public speaking techniques, and policy knowledge.