Cuneyd C. Kaya, PhD

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Analytics and Data Science Leader

Lead Cross-Functional Global Teams to Achieve Demanding Business Goals via Data Science

Trusted Analytics and Data Science Thought Leader who seamlessly connects business requirements with existing and new technology capabilities. Prioritizes and identifies opportunities to support and execute strategic plans. Generates innovative ideas that bring value and delivers end-to-end solutions by collaborating with cross-functional teams throughout organization. Excellent people skills to bring out the best from team members.

Professional Highlights

- Led global team of 10+ Data Scientists, Data Engineers, ML Practitioners, and ML Engineers from diverse backgrounds with deep quantitative skills.
- Developed Data Science, Machine Learning, and Big Data Analytics capabilities and deployed ML models into Production Pipelines using CI/CD and MLOps principles on Google Cloud Platform (GCP).
- Built analytics partnerships with internal / external stakeholders with comprehensive knowledge of data and ML algorithms.
- Project management experience with external customers both as individual contributor and team leader.
- Excellent communicator to explain highly technical issues to very non-technical group with frequent regular interaction with Senior Executive Management.

Skills

Languages	Python, Postgres, SQL, VB.NET, Pytorch, TensorFlow
Big Data / Databases	MongoDb, Redis, BigQuery, Hadoop, Teradata, Vertica, MS SQL Server, Oracle, MySQL
Tools / Technologies:	Kubernetes, Kubeflow, Spark, Terraform, GCP, AWS, Azure, Git, AsciiDocs, Tableau, CI/CD, Pentaho, AMPL/CPLEX, RapidMiner

Professional Experience

SABRE CORPORATION, Southlake, TX 2011 - 2023

Director, Data Science, Innovation Labs and Research **2017 - 2023**

Mobilized 10 Data Scientists, Data Engineers, and UI developers. Migrated Data Products and relevant Data Engineering pipelines to GCP from on-premises data center according to CI/CD practices and full integration with D&A Environment on GCP. Deployed Utility-type ML Models on GCP using Training and Serving Pipelines in VertexAI with CI/CD capabilities as Travel AI components.

- Migrated Global Airline Travel Data product development and processing from on premise Data Center to GCP, constantly delivering product a week earlier than SLAs at each cycle.
  - The processing uses 60 internal and external data sources and estimates demand for air travel between 2 cities.
- Enhanced Global Airline Demand estimate with forward-looking forecasting capabilities, reducing forecast error from 16% to 8% on average delivered via API on GCP and demo UI.
- Completed Traveler Behavior Modeling using ML for use in Retailing, Pricing, and Revenue Management, building demo UI using several APIs / microservices to tell end-to-end story to support Sales Engineering teams. Project examples:
  - Trip Purpose Segmentation, Customer Choice Model with Ancillary valuations, Intelligent Hotel Rate Configuration, Airline Ticket Commission Prediction, Propensity to Buy Models, Availability Rates, Inventory (ARI) Process Improvement with ML.
- Delivered external customer project with Middle Eastern airline on Trip Purpose Segmentation utilizing decision-tree based clustering techniques, resulting in solution being used in Airfare Pricing, Ancillary Pricing, Dynamic Availability and Packaging products for airline, and being implemented in “Special Offer” solution by airline.
- Designed and prototyped initial models for Hotel Availability, Rate, and Inventory Optimization Optimizing CRS Shopping volume, increasing efficiencies in ARI (Availability, Rate, and Inventory) feeds to OTAs, including optimizing CRS rate storages to get rid of non-productive rates using Machine learning concepts.
- Contributed to Technology Transformation with ML capabilities - Dynamic Threshold Recommendation for Application Service Levels, Intrusion Detection, Robotic Activity Identification, Tech Transformation Data Analytics.
- Introduced AI/ML opportunities to majority of organization via Special Interest Group and co-organized events with invited speakers with 200+ attendees for 8 straight quarters, delivering initial AI/ML training to 300 employees.
- Incorporated Agile Principles for Data Science projects, reducing time from ideation to product from 2+ years to 1-2 quarters.

SABRE CORPORATION (Continued)

Senior Manager, Data Science **2014 - 2017**

Supervised 6-8 data scientists and data engineers to build initial models that used Machine Learning to solve business problems and produced baseline capabilities. Led Data Engineering efforts on collecting system data for fraud detection, security breach research and product usage analytics. Offered Data Science as a Service to major Hotel chains. Most common work involved Customer Segmentation with k-Means implemented in R for a Major Luxury Hotel brand.

- Mobilized data modeling and data engineering efforts to analyze travel agent commands and behavior on Global Distribution System (GDS) and storage of resulting usable data on Hadoop, utilizing data for Fraud detection and behavior analysis.
- Developed predictive analytics model with Airline Clickstream Data to predict if search will end with booking, achieving F1 score at 90% and bringing potential IT cost savings of 15%+.
- Architected and established initial prototype for Travel Packaging Air+Hotel solution that recommends new hotels by understanding trip parameters, utilizing Collaborative Filtering techniques for traveler personas.

Manager, Data Science **2011 - 2014**

As IC, explored and analyzed large volumes of hotel and airline shopping data, and initiated Big Data usage. Interacted with customers, built data visualizations, and founded analytical frameworks for gaining insights. Provided data for media campaigns run by customers via company offerings. Worked with Engineering teams to innovate tool that generated Marketing Campaigns for Hotel Customers.

- Collected, modeled, stored, and analyzed Hotel Shopping Data for first time, finding insights later used in IPO packets.
- Identified Big Data solutions to store Airfare search data, presenting baseline for future data products.
- Created Data Science models that recommended Marketing Campaigns to customers, boosting revenue 17% in APAC.

BLOCKBUSTER, McKinney, TX 2008 - 2011

Manager, Decision Analysis

Guided quantitative professionals to design and maintain complex mathematical models for in-house Decision support tools to validate business decisions and recommended courses of action. Performed Business Operations and Budgeting analyses with Strategy and Finance teams. Acted as internal consultant and interacted with Strategic Planning and Executive Leadership daily.

UNIVERSITY OF TEXAS AT DALLAS, Richardson, TX 2007 - Present

Part-Time Lecturer of Information Systems

Design, implement, and teach Graduate Level Information Systems and Business Analytics courses in following topics: Data Mining, Introduction to Machine Learning, Database Modeling and Design. Student course evaluations consistently exceed 90%, which turn into "Exceeds Expectations" performance review score.

Research Publications

- "A heuristic for incorporating ancillaries into air choice models with personalization (Part 1: estimating preferences using hedonic regression)" (with Michal Sznajder and Richard Ratliff) *J of Revenue and Pricing Management* Vol. 22, pp.122–139 (2023). https://doi.org/10.1057/s41272-022-00399-2
- "A heuristic for incorporating ancillaries into air choice models with personalization (part 2: integrated multinomial logit and hedonic regression models)" (with Michal Sznajder and Richard Ratliff) *J of Revenue and Pricing Management* Vol. 22, pp. 140–151 (2023). https://doi.org/10.1057/s41272-022-00400-y
- "How Video Rental Patterns Change as Consumers Move Online" (with Alejandro Zentner, Michael D. Smith), *Management Science,* Volume 59, Issue 11, November 2013, Pages 2622-2634.
- "A Screening Technique for Delay Reduction in Proxy Caching" (with Grace Zhuong, Yong Tan and Vijay Mookerjee), *Decision Support Systems,* Volume 46, Issue 2, January 2009, Pages 594-603.
- "An Economic and Operational Analysis of the Market for Content Distribution Services", (with Kutsal Dogan and Vijay Mookerjee), published in *Proceedings of the International Conference on Information Systems*, 2003, Seattle, WA.

Education

- **Doctor of Philosophy (PhD)**, Management Science, Information Systems Concentration, University of Texas, Dallas
- **Master of Science (MS)**, Information Technology and Management, University of Texas, Dallas
- **Bachelor of Science (BS)**, Mathematics Engineering, Istanbul Technical University, Turkey