James Horine

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PROFESSIONAL EXPERIENCE

Bayer – Data Science & AI **April 2020 - Present**

Lead Data Scientist, Program Manager

Leads cross-functional data science teams delivering forecasting, artificial intelligence, machine learning, and generative AI solutions for global agriculture science research and policy position programs. Leads strategic cross functional projects, aligning technical execution, business objectives, solution architecture, staffing needs, and scoping.

- **Data Science Leadership:** Led strategic initiatives in forecasting, GenAI, machine learning, and agricultural economics, directing scientific review across diverse data stacks and cross-functional teams.
- **Contract Management:** Led evaluation and engagement on million-dollar contracts while delivering multiple external POC programs on time and under budget.
- **Predictive Analytics**: Architected market share program improving research model accuracy by 10% and producing predictions 6+ months ahead of prior models.
- **Strategic Program Development:** Directed cross-functional programs resulting in novel GenAI policy risk solutions and expanded global crop simulator programs across multiple crops.

Data Science Team Lead

Managed the model science delivery of a multi-disciplinary R&D team from inception to pipeline activation. Managed the scientific and engineering progress, alignment, and model advancement of Crop Disease Capability pipeline.

- **Machine Learning Innovation:** Developed patented ML algorithms (US20240119542A1) improving predictive model accuracy by +50%.
- **Research Leadership:** Led scientific team in developing scientific pipeline responsible for novel prediction capabilities and establishing new standards for agricultural risk assessment.
- **Performance Engineering:** Directed integration of novel feature engineering, doubling model performance and creating scalable solutions for complex challenges.
- **Scientific Strategy:** Managed and architected scientific roadmap accelerating model advancements by 10x, enabling rapid deployment of data science solutions.
- **Professional Recognition:** Received 2021 Bayer Top Performance Award for exceptional contributions to data science innovation and technical leadership.

UNITED AIRLINES – Operations Data Science **May 2019 - April 2020**
Senior Manager of Data Science

Led data science team delivering solutions across 10+ business areas. Technical oversight and execution within business objectives, solution architecture, staffing needs, and scoping.

- **Team Leadership:** Led operations data science team delivering across multiple program areas in Contact Centers, Technical Operations, Social, Load Planning, Safety, and Supply Chain.
- **Operational Efficiency:** Directed development of machine learning model for baggage predictions, saving $150,000 in fuel overages. Led review of predictive models achieving 20% reduction in case closure time while decreasing outbound reimbursement costs per case.
- **Technical Implementation:** Authored extensive Python and R code, establishing scalable data science solutions across multiple business-critical applications.

SITO MOBILE – Data Team **February 2018 - November 2018**
Senior Data Scientist

Delivered analytics and custom client requests in a highly competitive environment. Engineering collaborator deploying scalable analysis to the client pipeline for ad-serve analytics and telemetry.

- **Analytics Innovation:** Developed Brand Momentum Index to measure foot traffic dynamics across all locations for major brands, creating visibility into consumer movement patterns.
- **Location Intelligence:** Architected proprietary geolocation analytics capable of distinguishing between unique visitors and unique visits, enabling advanced customer journey analysis.
- **Technical Development:** Engineered in Scala and Python, building scalable data processing pipelines to handle massive geospatial datasets with exceptional performance.

GENERAL ASSEMBLY **June 2017 - October 2018**
Data Science Instructor

Instructed bootcamp students in industry relevant data science curriculum. Provided actionable feedback in class and hands-on mentorship, guided career conversations.

- **Curriculum Leadership:** Updated and delivered comprehensive data science curriculum covering Python, machine learning, time series forecasting, and NLP in bootcamp format.
- **Student Success & Career Development:** Mentored students to achieve measurable career outcomes, advised students on positioning their skills, and championed 1 bootcamp graduate gaining admission to University of Chicago's MSc Data Science program.
- **Technical Instruction & Mentorship:** Delivered hands-on instruction in Python programming and advanced analytics while providing individualized project feedback.

THE MARKETING STORE **February 2017 – November 2017**
Senior Data Scientist

Developed data science and machine learning models for automotive, quick-serve-restaurant and telecom client needs.

- **Predictive Modeling:** Built machine learning recommendation systems to identify optimal upsell opportunities for global clients' digital and hybrid campaigns.
- **Behavior Simulation Modeling:** Built agent-based models simulating customer behavior patterns from maintenance history and engagement data characterizing upsell scenarios.
- **Engineering Excellence:** Established automated unit testing and scalable data pipelines for core data science functionality, enabling CICD of data science and engineering processes.

CAPGEMINI **April 2016 – February 2017**
Senior Consultant

Data science and strategy developer and for Fortune 500 clients across quick-service restaurants, heavy machinery, and agriculture. Delivered machine learning and predictive modeling

- **Client Strategy Leadership:** Developed data science narratives and strategic frameworks for Fortune 500 clients while managing multiple concurrent POC and full engagement workflows.
- **Advanced Modeling Solutions:** Non-parametric sales forecasting models for major QSR clients. Delivered tire failure prediction model heavy industrial tires. Delivered machine learning models for crop disease classification and prediction using remote sensing data.
- **Technical Innovation:** Developed novel ranking methodologies for machine learning model feature contribution and interpretation.

SPIRALEDGE **June 2014 – January 2016**
Applied Data Scientist / ML Researcher

Multi-disciplinary researcher drawing on experience from NCAA Division 3 Swimming and time series and signal processing. Tested physical product. Designed and collected research grade data.

- **Algorithm Innovation:** Developed novel motion-tracking and analysis algorithms specifically designed for competitive distance-athletes & sports performance analytics.
- **Statistical Methodology:** Engineered new methodologies for motion tracking analysis, advancing biomechanical data interpretation and athlete performance measurement.
- **Performance Validation:** Established new measurement metrics and performance standards through extensive time series analysis and nonparametric classification techniques.

EDUCATION

Penn State University **Anticipated completion 2027**
Doctor of Engineering, Economic Systems and Simulations

San Jose State University
Master of Science, Statistics

University of California, Santa Cruz
Bachelor of Arts, Mathematics

Open-Source Software Development

R Library Developer

- *fastFeatures:* approximately correct feature selection in large feature spaces
- *TidyAgronomy:* scalable modern data science ecosystem for agronomy

Patents and Publications

Patent Pending
US20240119542A: Systems and methods for assessing crop damaging factors associated with agronomic fields

Working Paper
TidyAgronomy: on the need for scalable frameworks to lower the barrier for research and development in academic settings

Talks and Lectures

Getting Started with Open Source

OSTEM, *Careers in Academic and Industrial Research* 2017 Panelist

Galvanize SF, *A Crash Course in Time Series* 2015 Speaker