

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 novel prediction capabilities, 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:** Architected scientific roadmap accelerating throughput by 10x, enabling rapid deployment of agricultural innovations.
- **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 team of senior data scientists developing AI/ML solutions across 10+ business areas. Provided hands-on oversight to technical execution within business objectives. Collaborated with engineering on solution architecture, staffing needs, and scoping.

- **Team Leadership:** Led team of senior and manager data scientists 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, resulting in \$150,000 savings in fuel overages.
- **Enterprise Experience Transformation:** Led domain and scientific collaborative review of predictive models measuring customer complaints, achieving 20% reduction in case closure time while decreasing outbound 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. Collaborated with engineering to deploy highly saleable pipeline code and 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.

- **Industry-Aligned Education:** Updated course content to reflect current industry standards and emerging technologies, ensuring curriculum remained relevant to employer needs and market demands.
- **Technical Instruction & Mentorship:** Delivered hands-on instruction in Python programming and advanced analytics while providing individualized project feedback and professional development guidance.

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.

- **Recommendation Systems:** Developed custom machine learning recommendation systems using collaborative filtering to identify optimal upsell opportunities for global clients' digital and hybrid campaigns.
- **Predictive Modeling:** Built agent-based models simulating customer behavior patterns based on maintenance history and engagement data to predict high-probability upsell scenarios.
- **Engineering Excellence:** Established automated unit testing suites and saleable data pipelines for core data science functionality, enabling continuous improvement of data science and engineering processes.
- **Infrastructure Development:** Designed scalable data pipelines and analytics frameworks supporting real-time customer insights and marketing optimization across multiple client portfolios.

CAPGEMINI

April 2016 – February 2017

Senior Consultant

Data science and strategy developer and for Fortune 500 clients across diverse industries including quick-service restaurants, heavy machinery, and agriculture. Delivered analytical solutions ranging from proof-of-concept development to full-scale 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 across diverse industry verticals.
- **Advanced Modeling Solutions:** Built non-parametric sales forecasting models for major QSR clients and engineered tire failure prediction systems for leading heavy machinery suppliers using sophisticated statistical approaches.
- **Geospatial Analytics:** Designed machine learning models for meter-by-meter crop disease classification and prediction using remote sensing data, achieving high-resolution agricultural risk assessment capabilities.
- **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.
- **Research Leadership:** end-to-end R&D pipeline from algorithm conceptualization through performance validation, advancing sports analytics and motion analysis methodologies.

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