

MARIO RENATO CARRILLO CIFUENTES, M.S.

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AI | DECISION INTELLIGENCE | AGRICULTURAL & SUPPLY CHAIN SYSTEMS

Data Scientist and Decision Intelligence professional with more than seven years of experience developing artificial intelligence, machine learning, forecasting, optimization, and decision-support systems supporting agricultural supply chains, transportation networks, natural resource industries, and operational planning environments.

Proven record of applying advanced analytics, econometrics, operations research, machine learning, and AI methodologies to improve forecasting accuracy, supply chain resilience, transportation efficiency, resource allocation, and organizational decision-making.

Proposed endeavor focuses on advancing AI-driven decision intelligence systems that strengthen U.S. agricultural supply chain resilience, transportation efficiency, resource optimization, and economic competitiveness through practical applications of artificial intelligence, forecasting, optimization, process automation, and explainable AI.

PROPOSED ENDEAVOR

Advancing AI-Driven Decision Intelligence Systems to Improve U.S. Agricultural Supply Chain Resilience, Transportation Efficiency, and Resource Optimization

Areas of Focus:

- Artificial Intelligence & Machine Learning
- Supply Chain Decision Intelligence
- Agricultural Forecasting & Planning
- Transportation & Mobility Optimization
- Inventory Optimization & Operations Research
- Process Automation & Explainable AI
- Resource Optimization & Operational Resilience
- Decision Support Systems for Critical Industries

EDUCATION

University of St. Thomas St. Paul, MN M.S., Artificial Intelligence (In Progress) *Relevant Coursework:* Machine Learning, Artificial Intelligence, AI Ethics, Production AI Systems

University of Minnesota – Twin Cities Minneapolis, MN M.S., Applied Economics Minor: Statistics *Master's Thesis:* "The Adoption of Technologies and Structural Change in the Hog Industry: Evidence from the United States" *Research Focus:* Technology Adoption, Econometric Modeling, Agricultural Productivity, Structural Change Analysis, Multi-Equation Regression Systems, Principal Component Analysis (PCA), Statistical Inference

University of Minnesota – Twin Cities Minneapolis, MN B.S., Applied Economics Minor: Statistics

Universidad Tecnológica Equinoccial Ecuador B.S., Agricultural Engineering Minor: Management

RESEARCH, PUBLICATIONS & SCHOLARLY CONTRIBUTIONS

Conference Presentation Carrillo, M.R. (2016). "Characteristics of Hog Producers and How Those Characteristics Affect the Rate of Adoption of Technologies Used in the Hog Industry: Evidence from Hog Producers in the United States." Agricultural & Applied Economics Association (AAEA) Annual Meeting.

Peer-Reviewed Research Contribution Heins, Bradley; Sjostrom, Lucas; Endres, Marcia; Carrillo, Mario Renato; King, Robert; Moon, Roger; Sorge. "Effects of Winter Housing Systems on Production, Economics, Body Weight, BCS, and Bedding Cultures for Organic Dairy Cows." University of Minnesota Research Collaboration.

PROFESSIONAL EXPERIENCE

Brave Resources Inc. September 2025 – Present *Data Analyst – Geochemical & Exploration Analytics*

- Develop AI-assisted analytics, forecasting, and decision-support systems integrating geochemical, geological, and exploration datasets.
- Apply statistical modeling, econometric methods, predictive analytics, and scenario analysis to improve exploration efficiency and resource optimization.
- Design automated ETL pipelines and data validation frameworks using Python and SQL to improve analytical reliability and operational efficiency.
- Develop Power BI and executive dashboards supporting data-driven decision-making for geologists, engineers, and leadership teams.

- Support AI-assisted exploration analytics, predictive modeling, and decision intelligence initiatives within energy, mining, and natural resource industries.
- Contribute to domestic resource optimization, operational efficiency, and technology-driven decision-making in strategically important industries.

CHS Inc. – Inver Grove Heights, MN *July 2019 – September 2025 Global Agribusiness & Supply Chain Organization*

Senior Business Intelligence Analyst – Enterprise Measurement & Governance *Nov 2024 – Sep 2025*

- Defined enterprise-wide KPI governance frameworks supporting executive decision-making across commercial, operational, and supply chain organizations.
- Automated analytical workflows reducing manual reporting effort by approximately 95%.
- Developed enterprise dashboards, measurement systems, and governance standards supporting strategic planning and operational performance.
- Established validation controls, auditability standards, and reproducible analytical processes.

Senior Data Scientist – Experimentation, Optimization & Decision Intelligence Lead *Aug 2022 – Nov 2024*

- Led development of machine learning, forecasting, and optimization solutions supporting agricultural supply chain planning and operational decision-making.
- Developed enterprise forecasting systems improving prediction accuracy by approximately 18–20%.
- Built transportation optimization frameworks improving shuttle utilization by approximately 20% and reducing cycle times by approximately 30%.
- Developed global market intelligence and forecasting platforms integrating agricultural commodity, logistics, and operational datasets.
- Designed AI-enabled decision-support systems supporting inventory planning, transportation optimization, and commercial decision-making.
- Supported multi-million-dollar planning, resource allocation, and optimization decisions.

Senior Supply Chain Data Scientist *Oct 2021 – Jul 2022*

- Developed demand sensing and forecasting systems supporting agricultural commodity planning.
- Built anomaly detection and monitoring frameworks supporting operational resilience and supply chain visibility.
- Integrated forecasting outputs into planning workflows used by commercial and operational stakeholders.

Data Scientist – Country Operations *Jul 2019 – Sep 2021*

- Developed pricing, forecasting, simulation, and optimization models supporting agricultural supply chain operations.
- Generated more than \$1 million in recurring monthly business value through pricing and optimization initiatives.
- Built enterprise decision-support systems improving planning accuracy, inventory visibility, and operational effectiveness.

University of Minnesota – Department of Applied Economics *2014 – 2019 Graduate Research Assistant*

Professor Robert King

- Conducted econometric analysis, forecasting, and statistical modeling using STATA, R, Python, and Excel.
- Evaluated dairy production economics, operational performance, and agricultural feasibility studies.
- Contributed to peer-reviewed agricultural economics research.

Professor Terry Hurley

- Conducted technology adoption research utilizing econometric analysis, multi-equation regression systems, and principal component analysis.
- Investigated structural transformation and productivity drivers within the U.S. hog industry.
- Developed expertise in statistical inference, forecasting, economic modeling, and evidence-based decision-making.

SELECTED AI, ANALYTICS & DECISION INTELLIGENCE INITIATIVES

Supply Chain Decision Agent – AI-Driven Decision Intelligence for Agricultural Supply Chain Resilience

- Developed and led an AI-powered decision-intelligence system integrating machine learning, Monte Carlo simulation, stochastic inventory optimization, process automation, and explainable AI to strengthen agricultural inventory resilience, reduce operational risk, improve production planning, and support food supply reliability.

CrowdMove AI – Transportation Intelligence & Mobility Optimization Platform

- Designed an AI-driven transportation intelligence platform supporting transportation network efficiency, congestion reduction, mobility planning, emergency response coordination, and operational decision-making through predictive analytics and optimization.

Supply Chain Decision Intelligence Platform

- Developed forecasting, inventory optimization, procurement recommendation, shortage detection, and fulfillment analytics capabilities supporting supply chain planning and operational performance.

Inventory Optimization & Forecasting System

- Applied forecasting, simulation, and operations research methodologies to improve inventory policies, service levels, and resource allocation under uncertainty.

Customer Churn Risk Monitoring Platform

- Developed predictive analytics and monitoring systems supporting proactive customer retention strategies.

Donor Segmentation & Personalization Platform

- Applied machine learning techniques to improve segmentation, engagement strategies, and resource allocation decisions.

LEADERSHIP & ENTREPRENEURSHIP

Founder – MT Carrillo AI Solutions LLC

- Established a platform focused on research, innovation, and development of artificial intelligence, advanced analytics, operations research, and decision-intelligence systems supporting nationally important industries.

TECHNICAL EXPERTISE

Artificial Intelligence & Machine Learning: Python, Scikit-Learn, XGBoost, Predictive Modeling, Explainable AI, LLM Applications

Forecasting & Statistics: Econometrics, Time Series Forecasting, ARIMA, ETS, Prophet, Bayesian Modeling, Statistical Inference, Hypothesis Testing

Operations Research: Inventory Optimization, Monte Carlo Simulation, Stochastic Modeling, Scenario Analysis, Decision Intelligence

Data Engineering: SQL, Snowflake, ETL Pipelines, Data Validation, Process Automation, Spark

Visualization: Power BI, Executive Dashboards, KPI Governance, Performance Monitoring

Cloud & Platforms: AWS, GCP, Dataiku, Git, GitHub

SELECTED PROFESSIONAL ACHIEVEMENTS

- Improved forecasting accuracy by approximately 18–20% through machine learning and demand-sensing initiatives.
- Improved transportation asset utilization by approximately 20% while reducing operational cycle times by approximately 30%.
- Reduced manual reporting effort by approximately 95% through enterprise automation initiatives.
- Generated more than \$1 million in recurring monthly business value through optimization and pricing analytics.
- Developed decision-support systems supporting multi-million-dollar operational and commercial planning decisions.
- Designed enterprise KPI governance frameworks supporting executive-level decision-making.

CERTIFICATIONS

- AWS Certified AI Practitioner (Expected 2026)
- AWS Technical Essentials (2026)
- Advanced SAP IBP Demand Planning (2025)
- Dataiku Machine Learning Practitioner (2023)
- Unit Testing and Test-Driven Development (TDD) in Python (2025)