

OSCAR AGUILAR

Senior Data Scientist | Assistant Professor of Analytics

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Oscar Aguilar is a versatile data expert whose dual career in academia and industry uniquely positions him to bridge theory and practice. With more than ten years of experience teaching analytics at different universities—developing innovative curricula, publishing research, and growing program enrollment—he has established a reputation for educational excellence in both classroom and virtual formats. Parallel to his academic work, Oscar has spent eight years as a data scientist, architecting robust, end-to-end data pipelines and predictive models that optimize business processes, elevate data accuracy, and leverage third-party sources. His deep familiarity with analytics, data science, machine-learning algorithms, and framework deployment ensures that organizations can transform raw data into strategic insights and measurable outcomes.

Technical Skills

- Statistical modeling
- Machine learning
- Causal inference
- Optimization
- Experimentation
- Predictive modeling
- Data visualization
- SQL
- Python
- R
- MLOps
- Deep learning
- A/B testing
- Data wrangling
- GitHub
- scikit-learn
- TensorFlow
- AWS SageMaker
- Google Cloud Platform
- Dataiku
- Consulting
- Mentoring
- Cross-functional collaboration

Education

- **Iowa State University**—Ames, IA
PhD Statistics with minor in Mathematics
– Graduation Date: Aug 2019

- Dissertation: *Topics in Portfolio Allocation*
- Advisors: Dr. Arka Ghosh and Dr. Alex Roitershtein
- GPA: 3.7/4.0
- **Colorado School of Mines**—Golden, CO
Master of Science Applied Statistics
 - Graduation Date: May 2013
 - Dissertation: *Parameter Estimation in Physical Models: A Comparison Between Bayesian and Frequentist Methods*
 - Advisor: Dr. Luis Tenorio
 - GPA: 4.0/4.0
- **Colorado School of Mines**—Golden, CO
Bachelor of Science Applied Statistics
 - Graduation Date: May 2012
 - Cum Laude
 - GPA: 3.7/4.0

Professional Experience

- **Macquarie Group**—Philadelphia, PA
Senior Data Scientist: Jan 2022–Present
 - Partnered with cross-functional teams to leverage data-driven solutions in asset management.
 - Built forecasting models integrating macroeconomic and historical traffic data to optimize toll operations in Asia.
 - Developed and validated frameworks to extract insights from unstructured data using multi-modal large language models (LLMs).
 - Led recruitment efforts by evaluating resumes, selecting candidates, and conducting technical interviews.
- **Grand View University, Business Department**—Des Moines, IA
Assistant Professor of Analytics & Director of Business Analytics Undergraduate Studies: Aug 2019–present
 - My duties included developing the curriculum for the Business Analytics major and promoting the analytics culture on campus in line with the mission, policies, and procedures of Grand View University. I also established connections with local companies to collaborate on capstone projects. In addition, I served as the faculty sponsor of the Analytics Club and as a committee member on a few faculty hirings. Lastly, I was responsible for course and curriculum development.

- **Grand Canyon University**—Phoenix, AZ
Online Adjunct Data Science Instructor: Jun 2024–present
 - My duties involved ensuring that Grand Canyon University students received a quality online learning experience. I was responsible for performing online instructional duties and responsibilities in a timely manner while adhering to the mission, policies, and procedures of Grand Canyon University.
- **Principal Financial Group**—Des Moines, IA
Senior Analytics Consultant: Mar 2020–Jan 2022
 - Developed macroeconomic forecasting frameworks for real estate portfolio optimization, enabling data-driven decision-making.
 - Created predictive models to estimate credit losses under CECL accounting standards.
 - Designed and deployed customer segmentation and cross-selling frameworks to improve business growth.
 - Mentored junior analysts and interns to enhance organizational capabilities in analytics.
- **Principal Financial Group**—Des Moines, IA
Analytics Consultant: Jan 2018–Mar 2020
 - Developed predictive model to identify 401(k) clients likely to rollover.
 - Developed customer profiles and segmentation using cluster detection techniques to group target audience.
 - Provided consulting expertise across the corporation in machine learning, data mining, data transformation, and statistical software tools.
 - Developed and implemented a data science training program for employees; conducted live training sessions.
 - Mentoring summer interns.
- **Des Moines Area Community College**—West Des Moines, IA
Adjunct Instructor of Mathematics: Jan 2017–May 2018
 - Duties included the responsibility of providing a quality learning experience for DMACC students, perform instruction related duties and responsibilities in a timely manner and in accordance with the mission, policies and procedures of DMACC.
- **Drake University, College of Business & Public Administration**—Des Moines, IA
Adjunct Instructor of Statistics: Aug 2015–May 2021
 - My duties involved ensuring that Drake University students received a quality learning experience. I was responsible for performing instructional duties and responsibilities in a timely manner, while adhering to the mission, policies, and procedures of the College of Business & Public Administration.

Published Articles

- Uhlenhopp D., Aguilar O., Dai D., Ghosh A., Shaw M., and Mitra C. (2020), *Hospital-Wide Medication Reconciliation Program: Error Identification, Cost Effectiveness, and Detecting High Risk Individuals on Admissions*. Journal of Integrated Pharmacy Research and Practice. Vol. 9, pp. 195-203
- King, M., Hering, A. S., and Aguilar, O. M. (2016). *Building Predictive Models of Counterinsurgent Deaths Using Robust Clustering and Regression*. Journal of Defense Modeling and Simulation: Applications, Methodology, Technology.
- Aguilar, O., Allmaras M., Bangerth W., and Tenorio, L. (2015). *Statistics of Parameter Estimates: A Concrete Example*. SIAM Review, Vol. 57, No 1, pp. 131-149.

Presentations

- “NLP Roundtable.” Des Moines Data & Analytics Meetup, Des Moines, Iowa (Aug-2021).
- “Ensembles: Making Elegant Models Together.” Des Moines Data & Analytics Meetup, Des Moines, Iowa (Oct-2020).
- “Fraud Detection in Retail Transactions.” Summit for Retail: Data Mining Cup, Berlin, Germany (Jul- 2019).
- “Analytics at Principal: Three Case Studies.” Special Benefit Division of Principal Financial Group, Des Moines, Iowa (Feb-2019).