

Cristian Camilo Chica Castaño

PhD in Mathematics | Senior Data Scientist at Dapper | Ex-Morgan Stanley Quant
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EXPERIENCE

Senior Data Scientist, Dapper | Bogotá, Colombia Mar 2026 – Present

- Leading a 9-person cross-functional engineering team to architect AI-driven public affairs systems, encompassing RAG architectures, robust APIs, MCP, and agentic ETL infrastructure.
- Leading the design of scalable data infrastructure to support expansion across 10+ Latin American and Middle Eastern markets, including ETL pipelines, data quality frameworks, and country-onboarding standards.
- Directing the product roadmap and technical execution for the B2G vertical, acting as the bridge between high-level regulatory requirements and robust, production-ready data systems.

Quantitative Strategist, Morgan Stanley | New York, NY Jun 2024 – Mar 2026

- Led large-scale entity resolution and data analysis initiatives to drive Firm Strategy, resolving identity conflicts across millions of records to improve client targeting and coverage. (Licenses: FINRA SIE, Series 7, Series 63)
- Architected and deployed LLM-driven production tools using OpenAI API and LangChain, automating high-latency manual workflows and reducing processing time by over 60%.
- Mentored junior analysts and interns, resulting in successful return offers and measurably improved team delivery.

Research & Teaching Assistant, University of Minnesota | Minneapolis, MN Aug 2021 – Jun 2024

- Developed and optimized multi-agent Reinforcement Learning (Q-Learning) simulations in Python, establishing theoretical convergence and stability results in competitive pricing environments.
- Published research on algorithmic collusion in two-sided markets, contributing novel mathematical frameworks at the intersection of AI and industrial organization.

Research Assistant, Harvard Business School | Remote Sep 2018 – Aug 2021

- Formalized economic intuitions into rigorous mathematical models and ran numerical simulations to validate theoretical conclusions on firm behavior and market entry dynamics. Co-authored two academic papers.

Research Assistant, EAFIT University | Medellín, Colombia Jan 2017 – Jun 2018

- Developed a novel international offshoring measure through advanced statistical modeling on 50+ GB datasets, applying high-dimensional linear algebra and computational methods to transform raw trade data into validated economic indicators.

EDUCATION

PhD & MSc in Mathematics, University of Minnesota, Minneapolis, MN Jun 2025

MSc in Mathematics, National University of Colombia, Medellín Oct 2020

MSc in Economics, EAFIT University, Medellín Jun 2018

BSc in Mathematics & BA in Economics, National University of Colombia, Medellín Apr 2018

SKILLS

Programming: Python, SQL, KDB+/Q, Mathematica

ML & AI: Reinforcement Learning, LLM Integration (OpenAI, Anthropic Claude, and Google Gemini APIs, LangChain, RAG), NLP, Multi-Agent Systems

Data & Infrastructure: Pandas, PostgreSQL, ETL Pipelines, Web Scraping, NetworkX

Cloud/Infra: GCP (Cloud Run Jobs, IAM, etc), AWS, dbt

Domain Expertise: Game Theory, Industrial Organization, Platform Markets, Quantitative Finance

PUBLICATIONS

Chica, C., Guo, Y., & Lerman, G. (2025). Learning to Charge More: A Theoretical Study of Collusion by Q-Learning Agents. *Submitted*.

Chica, C., Guo, Y., & Lerman, G. (2024). Artificial Intelligence and Algorithmic Price Collusion in Two-sided Markets. *R&R, International Journal of Industrial Organization*.

Chica, C., Jiménez-Cárdenas, J., & Tamayo, J. (2025). Dynamic Competition for Customer Memberships. *Journal of Economics & Management Strategy*, 34, 525–556.

Chica, C., Guo, Y., & Lerman, G. (2024). Competition and Collusion in Two-Sided Markets with an Outside Option. *Working Paper*.

Chica, C., Kenneth, C., & Tamayo, J. (2021). Exclusive Dealing and Entry by Competing Two-Sided Platforms. *Harvard Business School Working Paper*.