

FAISAL SHAH KHAN, Ph.D.

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SUMMARY

Business school faculty and applied quantitative scientist with experience teaching business analytics, data science, AI, and finance at the graduate level. My work bridges analytics, game theory, and quantum information science, with applications to decision-making, optimization, and financial systems. I specialize in translating advanced quantitative methods into practical tools for managers, analysts, and strategists, drawing on experience in business schools, industry consulting, and applied research.

EXPERIENCE

Research Fellow (Quantum Information, Game Theory & Finance) Apr 2024 – Present
Rethinc. Labs, UNC Kenan-Flagler Business School — Chapel Hill, NC

- Developing a quantum trading platform concept based on game-theoretic analysis of financial markets, including quantitative indices and data-driven methods for inferring latent quantum informational correlations from market data.

Adjunct Faculty (Finance, Data Science, & AI) 2021 – Present
SKEMA Business School USA — Raleigh, NC

- Teach graduate-level courses in International Finance, Quantitative Methods, and Econometrics, emphasizing data-driven financial decision-making and strategic analysis.
- Integrate the Bloomberg Terminal as a core tool for financial modeling, market analysis, and empirical decision support.
- Teach Consulting Methods for AI projects, guiding student teams in framing business problems, designing analytics-driven solutions, and communicating results to non-technical stakeholders.
- Teach Business Intelligence and applied analytics, focusing on how managers use data, dashboards, and descriptive analytics to monitor performance and guide action.
- Support undergraduate instruction in statistics, reinforcing foundational quantitative reasoning for business applications.

Senior Project Consultant (Quantum Optimization) Aug 2021 – Oct 2022
DP World — Dubai, UAE (Remote)

- Developed a proof-of-concept optimization system using D-Wave quantum annealers to improve container placement and movements in container yards, minimizing unproductive moves during deliveries.
- Supervised interns in formulating the problem as a quadratic assignment problem and implementing it using the Ocean SDK.

Faculty & Principal Investigator (Mathematics and Quantum Information) 2010 – 2020
Khalifa University — Abu Dhabi, UAE

- Taught undergraduate and graduate mathematics and engineering courses and supervised student research and capstone projects in quantum computing.
- Led funded research programs in quantum information theory and secure communication protocols.
- Deployed *Kamiyya*, a quantum random number generator platform in secure networks.

SELECTED PROJECTS

- **Epidemiological Solutions with Quantum Annealing and Quantum Machine Learning:** Led a team using quantum annealers and Quantum Support Vector Machines (QSVM) to design optimal pandemic lockdown schedules, reducing deaths and maximizing hospital capacity while outperforming classical approaches.
- **Calculating Nash Equilibria on Quantum Annealers:** Developed a QUBO-based method to compute all pure strategy Nash equilibria in two-player non-cooperative games using D-Wave quantum annealers, supervising an intern team and achieving a 7–10× time-to-solution speed-up over classical approaches.

PROFESSIONAL & ADVISORY ROLES

- Member, NC Coalition for Global Competitiveness (2023–Present)
- Technology Advisor, Quantum Computing Inc (QCI) (2019–2022)

TALKS & PRESENTATIONS

- Speaker, Penn Initiative for the Study of Markets – University of Pennsylvania (2025)
- Panelist, Why We Need to Know the Future of Quantum Computing – NC Tech & Lenovo (2024)
- Guest Speaker, Quantum Fall Fest – UNC Chapel Hill (2024)
- Invited Speaker, 9th Arab-American Frontiers Symposium – U.S. National Academy of Sciences, Qatar (2023)

EDUCATION

- Ph.D., Mathematical Sciences – Portland State University (2009)
- M.S., Mathematics – Portland State University (2003)
- B.S., Mathematics – Santa Clara University (1997)

SELECTED PUBLICATIONS

- Khan, F.S. *When Recall Fails, Discord Remembers: A Quantum Analogue of Kuhn's Theorem*, Quantum Economics and Finance, Sage Journals (2025). DOI: [10.1177/29767032251377077](https://doi.org/10.1177/29767032251377077)
- Khan, F.S. et al. *Quantum Advantage in Trading: A Game-Theoretic Approach*, Quantum Economics and Finance, Sage Journals (April 2025). DOI: [10.1177/29767032251333418](https://doi.org/10.1177/29767032251333418)
- Khan, F.S., et al. *Calculating Nash Equilibrium on Quantum Annealers*, Annals of Operations Research, Springer Nature (January 2024). DOI: [10.1007/s10479-023-05700-z](https://doi.org/10.1007/s10479-023-05700-z)
- Zaman, S., Khan, F.S., et al. *Hybrid-Quantum Approach for the Optimal Lockdown to Stop the SARS-CoV-2 Community Spread Subject to Maximizing National Economy Globally*, Quantum Communication, The Institution of Engineering and Technology (September 2023). DOI: [10.1049/qtc2.12068](https://doi.org/10.1049/qtc2.12068)