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Application to the NBER Digital Economics and AI Tutorial, January 2027

Graduate Study

I am in the fifth year of the integrated MRes/PhD program in Finance and Economics at Warwick Business School, supervised by Cesare Robotti. I completed two years of graduate coursework in the MRes stage (2022–2024, with Distinction) and have been in the PhD stage since 2024; I expect to complete the PhD in 2028. Before Warwick, I received an MSc in Economics and Finance from CEMFI in Madrid (2020–2022) and a BSc in Economics from Dongbei University of Finance and Economics (2016–2020). I have worked as a research assistant to Dacheng Xiu at the University of Chicago (2026), Guanhao Feng at City University of Hong Kong (2020–2022), and Luis Servén at CEMFI (2021), and I teach as a Senior Graduate Teaching Assistant at Warwick Business School.

Research Interests

My research is in empirical asset pricing, machine learning, and financial econometrics. I develop data-driven and machine learning methods for settings where standard asset pricing tools struggle: high-dimensional sets of firm characteristics, weak links between economic risk factors and asset returns, and risk premia that change over time. A common thread in my work is that machine learning should not only fit the data but also deliver estimates that are statistically interpretable and economically meaningful.

Why This Tutorial

My work so far uses machine learning as a tool for asset pricing. I would like to go further and understand how AI is changing financial markets themselves, for example how AI-driven trading, information processing, and new digital data sources affect price formation, market efficiency, and the risks that investors are compensated for. The tutorial would give me a structured introduction to the frontier of research on digital economics and AI, and a chance to learn from and talk with the researchers who are shaping it. I am at the stage of my PhD where I am deciding on the direction of my next projects, and I hope the tutorial will help me identify questions at the intersection of AI and financial markets that I can pursue with the methods I have developed. I would also bring new AI tools and ideas back into my asset pricing research.

Current Projects

Breaks and Trends in Factor Premia (with Liyuan Cui, Guanhao Feng, and Yinan Su) studies structural breaks and regime-dependent premia in characteristic-based risk factors. We propose a predictive regression with time-varying coefficients that captures breaks in factor premia and establish the large-sample properties of the estimator. Using U.S. stock returns and a large set of firm characteristics, we document dynamic shifts in factor premia, especially around financial crises, and show that a regime-based out-of-sample factor timing strategy outperforms buy-and-hold for most factors. The project received a 2026 INQUIRE Europe Research Grant.

Estimating and Testing Nontraded Factors: A Machine Learning Mimicking Portfolio Approach (with Guanhao Feng, Jingyu He, and Cesare Robotti; Revise and Resubmit at the *Review of Asset Pricing Studies*) addresses a long-standing problem: many economically important risk factors are not traded and are only weakly correlated with asset returns, so their risk premia are hard to estimate. We propose the Mimicking Portfolio Tree, a tree-based method that recursively splits stocks on firm characteristics to build portfolios that maximize their correlation with a nontraded factor. The method delivers higher mimicking correlations and more reliable risk premium estimates than predefined portfolio bases. Across 69 nontraded factors over four decades, we find that only about one-third earn statistically significant premia.

Dissertation

My dissertation is in progress under the supervision of Cesare Robotti. It develops machine learning and econometric methods for estimating and testing risk premia in high-dimensional and time-varying settings, building on the two projects above.