Menghan Yuan

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EDUCATION

Nuffield College, Oxford University **Oxford, UK**
Postdoc in Climate Econometrics *Expected: Jan 2022–Dec 2023*

Nord University Business School **Bodø, Norway**
PhD in Economics *Oct 2018–Oct 2021*

- Research Interests:
  - Economic cost of climate change, damage function, social cost of carbon, carbon budget
  - Climate change impacts on crop yields
  - Climate risk on asset pricing
  - Impacts of air pollution on human health
  - Empirical econometric applications on macroeconomics

Yale University, Department of Economics **CT, US**
Visiting Researcher *Jan 2020 - May 2020*

New York University, Tandon School of Engineering **NY, US**
M.S. in Financial Engineering, Computational Track *Sept 2015 – May 2017*

- Coursework
  - **Finance & Math** (Stochastic Process and Option Pricing; Interest Rate and Credit Derivatives Pricing; Portfolio Optimization; Risk Management; CAPM; Econometrics)
  - **Programming** (Scientific Computing in Python; R in finance; object-oriented programming in C++; writing Excel VBA macros to customize computation in spreadsheet)
  - **Analytical and Machine Learning** (Time Series Regression and Prediction; Data Dimension Reduction; Cluster and Classifying Algorithm; Anomaly Detection and Recommendation System)

Huazhong Agricultural University **Wuhan, China**
B.A. in Economics *Sept 2011 – June 2015*

- Coursework
  - **Math Fundamentals** (Calculus; Linear Algebra and Programming; Probability and Statistics; Statistics; Mathematical Modeling)
  - **Economics** (Macroeconomics; Microeconomics; Econometrics)

Wuhan University **Wuhan, China**
B.A. in Accounting *Sept 2013 – June 2015*

- Coursework
  - Principles of Accounting; Intermediate Financial Accounting; Advanced Financial Accounting; Auditing; Cost and Management Accounting

RESEARCH AND ACADEMIC PROJECTS

Publications

- Thomas Leirvik and Menghan Yuan (2021). "A Machine Learning Technique for Spatial Interpolation of Solar Radiation Observations." *Earth and Space Science*, doi: 10.1029/2020EA001527.

- Menghan Yuan, Thomas Leirvik, and Martin Wild (2021). "Global trends in downward surface solar radiation from spatial interpolated ground observations during 1961-2019." *Journal of Climate*, doi: 10.1175/JCLI-D-21-0165.1.
  - Constructed and validated a surface solar radiation (SSR) dataset
  - Conducted a trend analysis of SSR on the continental level; spatial and seasonal patterns were discussed for each continent separately and for the entire globe;

Papers in Revision and Resubmission (R&R)

- Menghan Yuan, Thomas Leirvik, Trude Storelvmo, Kari Alterskjær, Peter C.B. Phillips, Christopher Smith (2022). "High-sensitivity Earth System Models most consistent with observations." currently under R&R from *Journal of Climate*, previously resubmit yet rejected eventually by *Nature Communications and PNAS*

Papers in Progress

- "Interactive Effects of Temperature and Precipitation on Global Economic Growth" with Thomas Leirvik and Hande Karabiyik
- "Heterogeneity in the Effects of Climate Change on Soybean Yields"
- "How ESG Ratings Affect Green Bound Announcement Return"

Previous Research Projects

Risk Management Based on Copulas

- Applied Multivariate Archimedean Copulas to capture the correlation among assets;
- Simulated the asset price evolution and calculated the VaR and shortfall distribution.

Trading in the Presence of Cointegration

- Constructed a trading strategy based on cointegration relationship, making an arbitrage when assets diverge from their long-term stochastic trend;
- Backtested the trading strategy in cointegrated time series.

Volatility Forecasting and Analysis

- Forecasted volatility of stock returns using GARCH model and Ordinary Least Square estimate;
- Simulated stochastic volatility processes with parameters estimated using Maximum Likelihood Method;
- Calculated implied volatility for options with various strike prices and demonstrated "volatility smile".

TEACHING AND SUPERVISING

Teaching the session *Climate Change Impacts on GDP* at Climate Econometrics Summer School (Oxford University)
Teaching FIN5000–Econometrics (Master level course at Nord University)
Teaching ECO2007–Quantitative Strategic Analytics (Bachelor level course at Nord University)
Co-supervised 1 master student thesis project.

CONFERENCES

- EGU (European Geosciences Union) General Assembly 2022, Vienna, Austria, June 2022;
- International Radiation Symposium Thessaloniki, Greece, July 2022,
- EC^2 conference: Econometrics of Climate, Energy, and Resources; virtual event; Aarhus University, Dec 2021;

- IWH-CIREQ-GW Macroeconometric Workshop: Environmental Macroeconomics, online, Nov 2021;
- 5^{th} Conference of EMCC (Econometric Models of Climate Change) Online, University of Oxford, Aug 2021;
  - "Heterogeneity in the Effects of Climate Change on Crop Yields"
- EGU General Assembly 2020, Vienna, Austria, May 2020;
  - "Trend analysis and transient climate sensitivity revealed by CMIP6"

WORKING EXPERIENCES

Nord University **Bodø, Norway**
Researcher *Oct 2021 – Dec 2021*

Minzhong Securities Investment Consulting Co. Ltd **Shenzhen, China**
Quantitative Engineer *July 2017 – June 2018*

- Participated in text analysis based on NLP for stock price prediction, particularly in developing sentimental signals for stocks;
- Maintained a high frequency database in SQL server 2008, including implementing data quality assurance, developing derivative statistics for portfolio performance tracking and risk management;
- Designed strategies for portfolio construction and rebalance based on stationary process and time series prediction.

Shoptaki **NY, US**
Quantitative Researcher Intern *Jun 2016 – Oct 2016*

- Participated in designing financial models to be implemented on Shoptaki Platform, including Credit Line; Correlation Analysis; Option Pricing; Dynamic Discounting.

Alpha Capital Holdings **NY, US**
Financial Analyst Intern *Jan 2016 – June 2016*

- Implemented Comparable Analysis to companies within the same industry, retrieved relevant data from financial statements and calculated financial ratios of interest;
- Assessed Merge and Acquisition influence on company performance.

ADDITIONAL

- **Programming Languages**: Python, R, SAS, C++, VBA, MATLAB
- **Languages**: English (professional proficiency), Chinese (native), Norwegian (intermediate oral and writing skills, B1-B2)
- Passed all three levels of Chartered Financial Analyst (**CFA**) exams