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PLACEMENT INFORMATION

Placement Officer
Dr. Noriko Amano Patino
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Placement Assistant:
Louise Cross
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EDUCATION BACKGROUND

University of Cambridge, King's College — *UK*
Ph.D. in Economics — *Oct 2016 – May 2021 (Expected)*
Research interests: Econometrics; Asset Pricing; Portfolio Management
Supervisor: Professor Oliver Linton

University of Cambridge, Wolfson College — *UK*
MPhil in Economic Research — *Oct 2015 – Jul 2016*

University of Birmingham — *UK*
BSc in Money, Banking and Finance with Honours, Class I GPA: 78/100 — *Sep 2013 – Jul 2015*

Southwestern University of Finance and Economics, SWUFE — *Chengdu, China*
Bachelor of Economics, Major: Finance and Economics GPA: 90/100 — *Sep 2011 – Jul 2013*

REFERENCES

Prof. Oliver Linton (Supervisor)
Professor of Political Economy
Faculty of Economics
University of Cambridge
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Prof. Xiaohong Chen
Malcolm K. Brachman Professor of Economics
Department of Economics
Yale University
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Prof. Gregory Connor
Professor of Finance
School of Business
Maynooth University
(01) 708 6662
gregory.connor@mu.ie

Prof. Chaohua Dong
Department of Statistics and Mathematics
Zhongnan University of Economics and Law
chaohuadong@outlook.com

TEACHING EXPERIENCE

Teaching Assistant for F500 Empirical Finance — *Feb 2021 (Scheduled)*
– The optional module for Mphil in Finance and Economics

Teaching Assistant for Diploma, Paper 3 Econometrics — *Oct 2018 – May 2020*
– The compulsory module for Advanced Diploma in Economics, evaluation 4.2/5

Teaching Assistant for F300 Corporate Finance — *Feb 2019 – May 2020*
– The compulsory module for Mphil in Finance and Economics, evaluation 3.8/5

Undergraduate supervisor for Paper 6 Mathematics and Statistics — *Oct 2019 – Apr 2020*
– The optional module for undergraduate students in economics
– Students from Magdalene College

Undergraduate supervisor for Paper 3 Econometrics — *Oct 2017 – Apr 2018*
– The compulsory module for undergraduate students in economics
– Students from King's College, Magdalene College and Emmanuel College

PUBLICATIONS

- **<u>When Will the Covid-19 Pandemic Peak?</u>** (with Oliver Linton)
  Journal of Econometrics, *forthcoming*
  – We carry out some analysis of the daily data on the number of new cases and the number of new deaths by (191) countries as reported to the European Centre for Disease Prevention and Control (ECDC). Our benchmark models are a quadratic model, a quartic model and a gamma model of time trends, which are applied to the log of new cases and deaths for each country. We use our model to predict when the peak of the epidemic will arise in terms of new cases or new deaths in each country and the peak level. We also predict how long the number of new daily cases in each country will fall by an order of magnitude. Finally, we

forecast the total number of cases and deaths for each country. We also consider two models that link the joint evolution of new cases and new deaths.

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WORKING
PAPERS

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Job Market Topic: A Semiparametric Characteristics-based Factor Model

- *Part1*
  A Dynamic Network of Arbitrage Characteristics (with Shuyi Ge and Oliver Linton)
  Revise and Resubmit, Journal of Business & Economic Statistics
  KEYWORDS: Semiparametric; Characteristics-based; Asset pricing; Power-enhanced test;
  – We propose an asset pricing factor model constructed with semiparametric characteristics-based mispricing and factor loading functions. This model captures common movements of stock excess returns and includes a two-layer network of arbitrage returns interconnected by security-specific characteristics. We approximate the unknown functions by B-splines where the number of B-splines coefficients is diverging. We estimate this model and test the existence of the mispricing function by a power enhanced hypothesis test. The enhanced test solves the low power problem caused by diverging B-spline coefficients. Meanwhile, the strengthened power approaches to one asymptotically. And the dynamic networks are explored through Hierarchical K-Means Clusterings from detected mispricing functions. We apply our methodology to CRSP (Center for Research in Security Prices) monthly data for the US stock market with one-year rolling windows during 1967-2017. This empirical study shows the presence of mispricing functions in certain time blocks and a dynamic network structure of arbitrage returns through groups of some characteristics.

- *Part2*
  A Dynamic Semiparametric Characteristics-based Model for Optimal Portfolio Selection
  (with Gregory Connor and Oliver Linton)
  KEYWORDS: Portfolio Management; Single index; GMM;
  – This paper develops a two-step semiparametric methodology for portfolio weight selection for characteristics-based factor-tilt and factor-timing investment strategies. We build upon the expected utility maximization framework of Brandt (1999) and Aït-sahalia and Brandt (2001). We assume that assets' returns obey a characteristics-based factor model with time-varying factor risk premia as in Li and Linton (2020). We prove under our return-generating assumptions that in a market with a large number of assets, an approximately optimal portfolio can be established using a two-step procedure. The first step finds optimal factor-mimicking sub-portfolios using a quadratic objective function over linear combinations of characteristics-based factor loadings. The second step dynamically combines these factor-mimicking sub-portfolios based on a time-varying signal, using the investor's expected utility as the objective function. We develop and implement a two-stage semiparametric estimator. We apply it to CRSP (Center for Research in Security Prices) and FRED (Federal Reserve Economic Data) data and find excellent in-sample and out-sample performance that are consistent with investors' risk aversion levels.

- **Specification-Lasso and An Application in Financial Markets** (with Chaohua Dong)
  KEYWORDS: Interactive; Lasso; Variable selection; Model specification;
  – This paper proposes the method of Specification-Lasso in a flexible semiparametric regression model that allows for the interactive effects between different covariates. Specification-Lasso extends Lasso and Adaptive Group Lasso to achieve both relevant variable selection and model specification. Specification-Lasso also gives preliminary estimates that facilitate the estimation of the regression model. Monte Carlo simulations show that the Specification-Lasso can accurately specify partially linear additive models with interactive effects. Finally, the proposed methods are applied in an empirical study, which examines the topic proposed by Freyberger, Neuhierl and Weber (2017), arguing that firms' sizes may have interactive effects with other security-specific characteristics, which can explain the stocks' excess returns together.

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WORKING
IN PROGRESS

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- **Augment Large Covariance Matrix Estimation with Auxiliary Information** (with Shuyi Ge and Weiguang Liu)
  – To estimate a large covariance matrix is a challenging job. Suppose we have identified a network G among cross-sections from auxiliary information such as network data. We

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propose a linear projection method to incorporate such information in the estimation of the large covariance matrix to improve efficiency. The simulation shows improvement in both Frobenius Norm and Matrix 1-norm over the linear shrinkage method, sample covariance matrix, and thresholding estimator.

- **Generalized EGARCH Model: Factor-EGARCH** (with Shuyi Ge and Weiguang Liu)
  - One the interesting stylized fact of the financial market is although firms' idiosyncratic returns share very little common variation, their idiosyncratic volatilities tend to move together. While the volatility clustering in time has been widely explored, the volatility clustering in cross-sections has been less touched until recently. In this paper, we propose a Generalized EGARCH model with multiplicative common volatility factor, which aims to capture volatility clustering in both time and cross-sectional dimensions.

PROFESSIONAL ACTIVITY	**Referee for *Journal of Econometrics***	
	Research Assistant for Prof. Oliver Linton	*Oct 2017 – Apr 2018*
PRESENTATIONS	**2020 Winter Meetings of the Econometric Society**	*Dec 2020 (Scheduled)*
	Cambridge Econometrics Workshop – Presented research works four times	*Feb 2019 – Aug 2019*
	CCIMI Research Day – Held by Cantab Asset Management, UK	*Nov 27, 2018*
	Econometrics Ph.D. Students Meeting – Held by Universidad Carlos III de Madrid, Spain	*Sep 07, 2018.*
AWARDS	• Cambridge International Scholarship	*Oct 2016 – Jun 2019*
	• Faculty Trust Fund	*Oct 2019 – Jun 2020*
	• Faculty Trust Fund	*Oct 2020*
SKILL & INTEREST	Proficient user of R for data analysis and processing	
	Language: Mandarin(native). English (fluent)	
	Basketball Team Player for RIEM, SWUFE	
	Kickboxing and Jeet Kune Do	