Peter Reinhard Hansen

Mailing Address:	University of North Carolina	Phone:	+1 919-445-9013
	Department of Economics	Fax:	+1 919-966-4986
	107 Gardner Hall		
	Chapel Hill, NC 27599-3305	Email:	hansen@unc.edu

Education

2000	Ph.D. in Economics, University of California, San Diego.
1995	Master of Science (Mathematics and Economics) University of Copenhagen.

Academic Positions

2016 - present	Henry A. Latané Distinguished Professor in Economics, University of North Carolina, Chapel Hill.
2011 - 2016	Professor of Economics, European University Institute.
2004 - 2012	Assistant Professor at Stanford University, Dept. of Economics.
2000 - 2004	Assistant Professor at Brown University, Dept. of Economics.

Teaching

2016 - present	Graduate and undergraduate econometrics at University of North Carolina.
2011 - 2016	Graduate econometrics at European University Institute.
2004 - 2011	Undergraduate and graduate econometrics at Stanford University.
2000 - 2004:	Undergraduate and graduate econometrics at Brown University.
1998 - 1999:	Teaching assistant at UCSD: Micro, Macro, Finance and Econometrics.
1992 - 1996:	Teaching assistant: Operations Research, Optimization & Convexity, Econometrics, Advanced Econometrics and Cointegration.

Publications

Books

Workbook on Cointegration, Oxford University Press (1998), (with S Johansen).

Articles

2025

"Option Pricing with Time-Varying Volatility Risk Aversion" (with C Tong). *Review of Financial Studies*, (forthcoming 2025).

"Cluster GARCH" (with I Archakov and C Tong). *Journal of Business and Economic Statistics* (forthcoming 2025).

	“A Multivariate Realized GARCH Model” (with I Archakov and A Lunde). *Journal of Econometrics, 106040* (forthcoming 2025).
2024	“A Canonical Representation of Block Matrices with Applications to Covariance and Correlation Matrices” (with I Archakov). *Review of Economics and Statistics* Vol. 106, 1099-1113, (2024).
	“A New Method for Generating Random Correlation Matrices” with (I Archakov and Y Luo). *Econometrics Journal* Vol. 27, 188-212 (2024).
	“Periodicity in Cryptocurrency Volatility and Liquidity” (with C Kim and W Kimbrough). *Journal of Financial Econometrics* Vol. 22, 224-251 (2024).
	“Realized GARCH, CBOE VIX, and the Volatility Risk Premium” (with Z Huang, C Tong, and T Wang). *Journal of Financial Econometrics* Vol. 22, 187–223, (2024).
2023	“Characterizing Correlation Matrices that Admit a Clustered Factor Representation” (C Tong). *Economic Letters* Vol. 233, 111433 (2023).
2022	“Relative Contagiousness of Emerging Virus Variants: An Analysis of the Alpha, Delta, and Omicron SARS-CoV-2 Variants”. *Econometrics Journal* Vol. 25, 739-761 (2022).
	“Option Pricing with State-dependent Pricing Kernel” (with Z Huang and C Tong). *Journal of Futures Markets* Vol. 42, 1409-1433 (2022).
	“How should parameter estimation be tailored to the objective?” (with E Dumitrescu). *Journal of Econometrics* Vol. 230, 535-558 (2022).
2021	“A New Parametrization of Correlation Matrices” (with I Archakov). *Econometrica* Vol 89, 1699-1715 (2021).
	“A Dynamic Model of Vaccine Compliance: How Fake News Undermined the Danish HPV Vaccine Program” (with M Schmidtblaicher). *Journal of Business & Economic Statistics* Vol. 39, 259-271 (2021).
	“Mediernes Rolle i HPV-vaccinationsprogrammets storhed of fald – og vejen frem” (in Danish with K Mølbak). Chapter in: Når medierne sætter dagsordenen. (2021).
2020	“The contagious nature of a vaccine scare: How the introduction of HPV vaccination lifted and eroded MMR vaccination in Denmark” (with NT Brewer, M Gørtz, and M Ejrnæs. *Vaccine* Vol. 38, 4432-4439 (2020).
	“Resilience of HPV Vaccine Uptake in Denmark: Decline and Recovery” (with NT Brewer and M Schmidtblaicher). *Vaccine* Vol. 38, 1842-1848 (2020).
2019	“Realized Wishart-GARCH: A Score-driven Multi-Asset Volatility Model” (with P Gorgi, P Janus, and SJ Koopman). *Journal of Financial Econometrics* Vol. 17, 1-32 (2019).
2017	“Option Pricing with the Realized GARCH Model: An Analytical Approximation Approach” (with Z Huang and T Wang). *Journal of Futures Markets* Vol. 37, 328–358 (2017)
2016	“Exponential GARCH Modeling with Realized Measures of Volatility” (with Z Huang). *Journal of Business & Economic Statistics* Vol. 34 269-287 (2016)
2015	“Equivalence Between Out-of-Sample Forecast Comparisons and Wald Statistics” (with A Timmermann). *Econometrica* Vol. 83, 2485-2505 (2015)

	"A Martingale Decomposition of Discrete Markov Chains". *Economics Letters* Vol. 133, 14-18 (2015)
	"A Markov Chain Estimator of Multivariate Volatility from High Frequency Data" (with G Horel, A Lunde, and I Archakov). In "The fascination of Probability, Statistics and Their Applications. In honour of Ole E. Barndorff-Nielsen on his 80th birthday", Springer (2015)
	"Comment on 'Comparing Predictive Accuracy, Twenty Years Later'" by Francis X. Diebold" (with A Timmermann). *Journal of Business and Economic Statistics* Vol. 33, 17-21 (2015)
2014	"Realized Beta GARCH: A Multivariate GARCH Model with Realized Measures of Volatility" (with A Lunde and V Voev). *Journal of Applied Econometrics* Vol 29, 774-799 (2014)
	"Estimating the Persistence and the Autocorrelation Function of a Time Series that is Measured with Error" (with A Lunde). *Econometric Theory* Vol 30, 60-93 (2014)
2012	"Realized GARCH: A Joint Model of Returns and Realized Measures of Volatility" (with Z Huang and H Shek). *Journal of Applied Econometrics* Vol 27, 877-906 (2012)
2011	"The Model Confidence Set", (with A Lunde and JM Nason). *Econometrica*. Vol 79, 453-497 (2011)
	"Subsampled realised kernels", (with OE Barndorff-Nielsen, A Lunde, and N Shephard). *Journal of Econometrics* Vol. 160, 204-219 (2011)
	"Multivariate Realised Kernels: Consistent Positive Semi-Definite Estimators of the Covariation of Equity Prices with Noise and Non-Synchronous Trading", (with OE Barndorff-Nielsen, A Lunde, and N Shephard). *Journal of Econometrics* Vol. 162, 149-169 (2011)
	"Forecasting Volatility using High Frequency Data", with A Lunde. In Oxford Handbook on Economic Forecasting. Edited by David Hendry and Michael Clements. Chapter 19, 525-556, (2011)
2009	"Realised Kernels in Practice: Trades and Quotes", (with OE Barndorff-Nielsen, A Lunde, and N Shephard) *Econometrics Journal*. Vol. 12, 1-32 (2009)
2008	"Designing realised kernels to measure the ex-post variation of equity prices in the presence of noise", (with OE Barndorff-Nielsen, A Lunde, and N Shephard), *Econometrica*, Vol. 76, 1481-1536 (2008)
	"Reduced-Rank Regression: A Useful Determinant Identity". *Journal of Statistical Planning and Inference,* Vol. 138, 2688-2697 (2008)
	"Moving average-based Estimators of Integrated Variance", (with A Lunde and J Large). *Econometric Reviews,* Vol. 27, 79-111 (2008)
	"The Greenspan Effect on Equity Markets: An Intraday Examination of US Monetary Policy Announcements", (with A Zebedee, E Bentzen, and A Lunde), *Financial Markets and Portfolio Management* Vol. 22, 3-20 (2008)
2006	"Realized Variance and Market Microstructure Noise", (with A Lunde). The 2005 Invited Address with Discussions and Rejoinder. *Journal of Business and Economic Statistics.* Vol. 24, 127-218 (2006)

	"Consistent Ranking of Volatility Models", (with A Lunde). *Journal of Econometrics*, Vol. 131, 97-121 (2006)
2005	"A Test for Superior Predictive Ability". *Journal of Business and Economic Statistics*, Vol. 23, 365-380 (2005)
	"A Realized Variance for the Whole Day Based on Intermittent High-Frequency Data", (with A Lunde). *Journal of Financial Econometrics*, Vol. 3, 525-554 (2005)
	"A Forecast Comparison of Volatility Models: Does Anything Beat a GARCH(1,1)?", (with A Lunde). *Journal of Applied Econometrics.* Vol. 20 pp. 873-889 (2005)
	"Granger's Representation Theorem: A Closed-Form Expression for I(1) Processes". *Econometrics Journal*, Vol. 8, 23-38 (2005)
2003	"Structural Changes in the Cointegrated Vector Autoregressive Model". *Journal of Econometrics*. Vol. 114, 261-295 (2003)
	"Choosing the Best Volatility Models: The Model Confidence Set Approach", (with A Lunde and JM Nason). *Oxford Bulletin of Economics and Statistics*. Vol. 65, 839-861 (2003)
1995	"Subsidising Consumer Services: Effects on Employment, Welfare and the Informal Economy", (with NK Frederiksen, H Jacobsen, and PB Sørensen). *Fiscal Studies* Vol. 16 May (1995)

Other Publications

2009	"Conference Given in honor of T.W. Anderson'', (with TL Lai and R Velu). *Amstat News* Issue 386, August, p43 (2009).
	"Conference in Economics and Statistics, in honor of TW Anderson's 90th Birthday'', (with T Lai and R Velu). *IMS Bulletin* Vol 38. January/February (2009).
2003	"Does Anything Beat a GARCH(1,1)? A Comparison Based on Test for Superior Predictive Ability" (with A Lunde). In the *Proceedings for The 2003 IEEE International Conference on Computational Intelligence for Financial Engineering*, 301-307 (2003)
	"Cointegration". In: The SAGE Encyclopedia of Social Science Research Methods. Edited by M. S. Lewis-Beck, A. E. Bryman, and F. Liao. Sage, (2003).

Working Papers

"Moments by Integrating the Moment-Generating Function" (with C Tong).

"Cluster GARCH" (with I Archakov and C Tong).

"Convolution-t Distributions" (with C Tong).

"Robust Estimation of Realized Correlation: New Insight about Intraday Fluctuations in Market Betas" (with Y Luo).

"A Winner's Curse for Econometric Models: On the Joint Distribution of In-Sample Fit and Out-of-Sample Fit and its Implications for Model Selection".

"Volatility During the Financial Crisis Through the Lens of High Frequency Data: A Realized GARCH Approach" (with D Banulescu, Z Huang, and M Matei).

Administration

2014-2020	Director of EC^2 Conference Series.
2013-2016	Director of Graduate Studies, Economics, European University Institute.
2009	Program Chair for *the 2009 EC^2 Conference*: Real-Time Econometrics
2006-2009	Organized workshops under Stanford Institute for Theoretical Economics.
2007-2008	Junior Search Committee member, Department of Economics, Stanford University.
2005 – 2006	Associate Director of Undergraduate Studies, Department of Economics, Stanford University.
2004 – 2005:	Graduate Admission, Department of Economics, Stanford University.
2001 – 2002:	Junior Search Committee member, Department of Economics, Brown University.
2000 – 2001:	Department Computer Coordinator, Department of Economics, Brown University.
1993 – 1996:	Board member of the Danish Operations Research Society (President 1995-1996).
1990 – 1994:	Editor of the student magazine: MatØk-Nyt.
1990 – 1994:	Student member of the education board for the master's program in Mathematics and Economics at University of Copenhagen.

Longer Research Visits

2018 March	Paris X
2017 July	Copenhagen Business School
2015 December	University of Orléans
2015 April	Paris X
2009 August	CREATES, University of Aarhus
2008 October	Federal Reserve Bank, Board of Governors, Washington DC
2008 August	CREATES, University of Aarhus
2008 January	Federal Reserve Bank of Atlanta
2007 August	CREATES, University of Aarhus
2004 March	Federal Reserve Bank of Atlanta
2004 Spring	University of Copenhagen
2003 May	European Central Bank, Frankfurt, Germany.
2003 March	Federal Reserve Bank of Atlanta

2000 May	European University Institute, Florence, Italy.

Honors, Scholarships, Fellowships, and Awards

2017	Clarivate Analytics Highly Cited Researcher 2017.
2016	Named on Thomson Reuters' list of the World's Most Influential Scientific Minds in 2016.
2015	Named on Thomson Reuters' list of the World's Most Influential Scientific Minds in 2015.
2014	Named on Thomson Reuters' list of the World's Most Influential Scientific Minds in 2014.
2014	Richard Stone Prize in Applied Econometrics 2014. (Awarded to the best paper with substantive econometric application that has been published in the preceding two years of the Journal of Applied Econometrics).
2004	Award for Undergraduate Teaching Excellence: *Economics Teacher of the Year*. Awarded by the Honor Society in Economics: Omicron Delta Epsilon at Brown University.
2001 – 2003:	Salomon Research Grant at Brown University: Project in "Data Snooping in Econometrics", \$12,000.
2001 – 2003:	Danish Research Agency: "Data Mining and Model Comparison", approx \$175,000 (with A. Lunde).
1999 – 2000:	Department of Economics, UCSD, San Diego: "Project in Econometrics Analysis Fellowship".
1997 – 1999:	Danish Social Science Research Council: "Graduate Stipend".
1997 – 2000:	The Danish Research Academy: "Tuition and fees for graduate studies at UCSD".

Conference Presentations

1996 May:	Danish Econometric Society annual meeting, Sandbjerg, Denmark. "Exogeneity in the I(1) Model".
1999 April:	Macroeconomic Transmission Mechanisms: Empirical Applications and Econometric Methods. Trondheim, Norway. "Structural Breaks in the Term Structure of Interest Rates".
2000 May:	Macroeconomic Transmission Mechanisms, Copenhagen. "Testing for Structural Changes in Cointegration Relations".
2000 August:	World Congress of the Econometric Society, Seattle. "Structural Changes in the Cointegration Vector Autoregressive Model".
2001 May:	First Nordic Econometric Meeting, Sandbjerg, Denmark. "An Unbiased and Powerful Test for Superior Predictive Ability".
2001 May:	Macroeconomic Transmission Mechanisms, EUI, Florence. "An Unbiased and Powerful Test for Superior Predictive Ability".

2001 June:	North American Summer Meeting of the Econometric Society, Maryland. "An Unbiased and Powerful Test for Superior Predictive Ability".
2001 July:	NBER/NSF conference in Cambridge, MA. "An Unbiased and Powerful Test for Superior Predictive Ability".
2001 August:	European Meeting of the Econometric Society, Lausanne. "An Unbiased and Powerful Test for Superior Predictive Ability".
2002 January:	Econometric Society Winter Meeting, Atlanta. "An Unbiased and Powerful Test for Superior Predictive Ability".
2002 August:	Econometric Society European Meeting, Venice. "Generalized Reduced Rank Regression".
2002 September:	NBER/NSF time-series conference, Philadelphia. "The Distribution of the Maximal R^2".
2002 December:	EC^2: Model Selection and Evaluation, Bologna, Italy. "The Distribution of the Maximal R^2".
2003 January:	“Macroeconomic transmission mechanisms in Europe. Empirical applications and econometric methods”, Copenhagen. "The Distribution of the Maximal R^2".
2003 May:	SBFSIF, Quebec. "Regression Analysis with Many Specifications: A Bootstrap Method for Robust Inference". (Invited).
2003 May:	New Frontier on Volatility Modelling, Florence, Italy. "Consistent Preordering with an Estimated Criterion Function, with an Application to the Comparison of Volatility Models".
2003 July:	NBER/NSF Summer Institute, Boston. "Regression Analysis with Many Specifications: A Bootstrap Method for Robust Inference".
2003 August:	American Statistical Association, San Francisco. "Generalized Reduced Rank Regression". (Invited).
2003 August:	ESEM/EEA, Stockholm. "Regression Analysis with Many Specifications: A Bootstrap Method for Robust Inference".
2003 October:	Mini Conference on Forecasting, Pasadena, CA. Jointly organized by UCLA, USC, and California Institute of Technology. "Choosing the Best Volatility Models: The Model Confidence Set Approach". (Invited).
2004 May:	Conference on Forecasting for young researchers, Duke University. "Model Confidence Set for Forecasting Models".
2004 June:	Econometric Society North American Summer Meeting, Providence. "Realized Variance and IID Market Microstructure Noise".
2004 July:	NBER/NSF Summer Institute, Boston. "Model Confidence Set for Forecasting Models".
2004 August:	Review of Economics Summer School, Nuffield College, Oxford. “Realized Variance and Market Microstructure Noise”.
2004 September:	Innovations in Financial Econometrics in Celebration of the 2003 Nobel, at Stern, NYU. “Realized Variance and Market Microstructure Noise”.
2005 January:	Econometrics Society Winter Meeting, Philadelphia. “Realized Variance and Market Microstructure Noise”.
2005 April:	“Model Confidence Set for Forecasting Models” CIRANO-CIREQ: Forecasting in Macroeconomics and Finance, Montreal.

2005 April:	"Regular and Modified Kernel-Based Estimators of Integrated Variance: The Case with Independent Noise". SBFSIF, Quebec.
2005 June:	"Realized Variance and Market Microstructure Noise". Princeton-Chicago Conference on the Econometrics of High Frequency Financial Data, Florida.
2005 August:	"Realized Variance and Market Microstructure Noise". JBES Invited Address, ASA Meeting, Minneapolis.
2005 August:	"Kernel-Based Estimators of Integrated Variance". Econometric Society World Congress, London.
2006 April:	"Designing Realized Kernels to Measure the Ex-Post Variation of Equity Prices in the Presence of Noise". CIRANO-CIREQ: Montreal.
2006 May:	"MA-Based Estimators of Integrated Variance". `International Conference on High Frequency Finance', Konstanz.
2006 June:	"Designing Realized Kernels to Measure the Ex-Post Variation of Equity Prices in the Presence of Noise". CAF, Sandbjerg, DK.
2006 June:	"Cointegration, GRT, and High-Frequency Data". `The Cointegrated VAR Approach' Shaeffergaarden, DK.
2006 July	"Criteria-Based Shrinkage for Forecasting". Stanford Institute for Theoretical Economics Conference.
2006 December	"Subsampled Realised Kernels". Zeuthen Workshop, University of Copenhagen.
2006 December	"Model Confidence Set for Forecasting Models", EC^2 Rotterdam.
2007 March	"Subsampling Realised Kernels", Duke University.
2007 April	"Subsampling Realised Kernels", Hong Kong.
2007 June	"Realized Kernels", Econometric Society Summer Meeting, North America, at Duke University. (Invited plenary speaker).
2007 August	"Quadratic Variation by Markov Chains", CREATES opening conference, University of Aarhus.
2007 August	"Subsampling Realised Kernels", Econometric Society Summer Meeting, Europe, Budapest.
2007 June	"Realized Kernels", Invited Plenary Speaker at the Econometric Society Summer Meeting, North American.
2007 November	"Criteria-Based Shrinkage for Forecasting", 5th ECB Workshop on Forecasting Techniques, European Central Bank, Frankfurt.
2008 March	"In-Sample and Out-of-Sample Fit: Their Joint Distribution and Its Implications for Model Selection", St. Louis Fed: Time Series Econometrics with Applications to Macroeconomics and Finance.
2008 May	"Multivariate Realised Kernels", Imperial College, London.
2008 June	"Quadratic Variation by Markov Chains", SOFIE Inaugural conference, New York.
2008 July	"In-Sample and Out-of-Sample Fit: Their Joint Distribution and Its Implications for Model Selection", NBER-NSF Summer Institute, Boston.
2008 July	"In-Sample and Out-of-Sample Fit: Their Joint Distribution and Its Implications for Model Selection", Forecasting in Rio de Janeiro.
2008 August	"Multivariate Realised Kernels", Volatility Symposium, University of Aarhus.

2008 September	“In-Sample and Out-of-Sample Fit: Their Joint Distribution and Its Implications for Model Selection”, NBER-NSF Time-Series Conference.
2008 June	“Quadratic Variation by Markov Chains”, Vast Data Conference, Oxford-Man Institute
2008 October	“Multivariate Realised Kernels”, High-Frequency Data Analysis in Financial Markets, Hitotsubashi University.
2009 September	“Quadratic Variation by Markov Chains”, NBER/NSF Time Series Conference, UC Davis.
2009 September	“Quadratic Variation by Markov Chains”, All California Econometrics Conference at UC Riverside.
2010 January	“Quadratic Variation by Markov Chains”, ASSA/Econometric Society Winter Meeting, Atlanta.
2010 April	“Realized GARCH: A Complete Model of Returns and Realized Measures of Volatility”, NYU, Stern, Conference on: Volatility and Systemic Risk.
2010 May	“Realized GARCH: A Complete Model of Returns and Realized Measures of Volatility”, SETA 2010, Singapore.
2010 August	“A Winner’s Curse for Econometric Models: On the Joint Distribution of In-Sample Fit and Out-of-Sample Fit and its Implications for Model Selection”, Takeshi Amemiya Conference, Shanghai.
2010 August	“Realized GARCH: A Complete Model of Returns and Realized Measures of Volatility”, Econometric Society World Congress, Shanghai.
2010 November	“The Use of High-Frequency Data in Financial Econometrics: Recent Developments”, Stanford Conference in Quantitative Finance.
2010 December	“Realized GARCH: A Joint Model for Returns and Realized Measures of Volatility”, Second French Econometrics Conference, Paris.
2011 February	“Realized GARCH: A Joint Model of Returns and Realized Measures of Volatility”. 2nd Annual CIRPEE Applied Financial Time Series Workshop, HEC conference, Montreal.
2011 April	“Choice of Split in Out-of-Sample Forecast Evaluation”. Econometrics Workshop at St. Louis Federal Reserve Bank. St. Louis.
2011 May	“Choice of Split in Out-of-Sample Forecast Evaluation”. Causality, Prediction, and Specification Analysis: Recent Advances and Future Directions in honor of the 60th birthday of Halbert L. White. UCSD Rady School of Management.
2011 May	“Realized Beta GARCH: A Multivariate GARCH Model with Realized Measures of Volatility and CoVolatility”, 2nd Humboldt-Copenhagen Conference on Financial Econometrics, Copenhagen, Denmark.
2011 June	“Choice of Split in Out-of-Sample Forecast Evaluation”. SMU-ESSEC Conference on Empirical Finance and Financial Econometrics, Singapore.
2011 September	“Choice of Split in Out-of-Sample Forecast Evaluation”. Conference on New Developments in Time Series Econometrics - celebrating Helmut Lutkepohl 10 years at EUI, Florence, Italy.
2011 October	“Realized Beta GARCH”, 2nd High-Frequency Data Analysis in Financial Markets, Osaka.
2012 May	“Choice of Split in Out-of-Sample Forecast Evaluation”. Conference on Macro and Financial Economics, Brunel University, London.

2012 May	"Realized Beta GARCH", IMS on Finance: Probability and Statistics(FPS), UC Berkeley, CA.
2012 June	"Choice of Split in Out-of-Sample Forecast Evaluation". Annual conference of the Society for Financial Econometrics, Oxford, UK.
2012 September	"Choice of Split in Out-of-Sample Forecast Evaluation". California Econometrics, UC Davis, CA.
2012 November	"Realized Factor GARCH". High-Frequency Data Analysis in Financial Markets, Hiroshima, Japan.
2013 March	"Realized Factor GARCH". 3rd Humboldt–Copenhagen Conference, Berlin Germany.
2013 April	"Realized GARCH". Financial Risk Management & Risk Reporting, Konstanz, Germany.
2013 April	"Parameter Estimation with Out-of-Sample Objective". Frontiers of Macroeconometrics. Conference in Honor of Mark Watson, UCL, London.
2013 July	"Parameter Estimation with Out-of-Sample Objective". Bristol Econometric Study Group, Bristol, UK.
2013 October	"Realized Factor GARCH". Financial Econometrics Workshop, Natal, Brazil.
2014 January	"Realized Factor GARCH". Second Workshop on Score Driven Models, La Laguna, Tenerife, Spain.
2014 May	"Realized Factor GARCH". Financial Econometrics Conference, Toulouse, France.
2014 July	"Realized Factor GARCH". Econometric Society Australasian Meeting, Hobart Australia.
2014 September	"Equivalence between Out-of-Sample Forecast Comparisons and Wald Statistics", Hamilton Conference at the Federal Reserved Bank, San Francisco.
2014 November	"A Martingale Decomposition of Discrete Markov Chains", Recent Advances in High-Frequency Statistics. Weierstrass Institute. Berlin.
2014 December	"Equivalence between Out-of-Sample Forecast Comparisons and Wald Statistics", Advances in Econometrics, EUI, Florence.
2015 January	"Multivariate Volatility Estimation by Markov Chain Methods" ICEEE, Salerno Italy.
2015 May	"Limit Theory for the Long Run Variance of Finite Markov Chains". Time Series and Financial Econometrics, Montreal.
2015 June	"Limit Theory for the Long Run Variance of Finite Markov Chains". High Frequency Financial Econometrics Conference, Barcelona.
2015 June	"A Markov Chain Estimator of Multivariate Volatility from High Frequency Data". Conference on Probability, Statistics and their Applications – Celebrating the Scientific Achievements of Ole E. Barndorff-Nielsen, Aarhus.
2015 June	"Realized Factor GARCH". 3rd Rimini Time Series Workshop, Rimini.
2015 October	"Limit Theory for the Long Run Variance of Finite Markov Chains". 11th World Congress of the Econometric Society, Montreal.
2015 October	"Realized Factor GARCH". Financial Econometrics, Challenges and Directions for Future Research, Rio de Janeiro.

2015 October	"Volatility During the Financial Crisis Through the lens of High frequency Data: A Realized GARCH Approach". 2nd International Workshop in Financial Econometrics, Salvador, Brazil.
2015 December	"Realized Factor GARCH". 7th French Econometric Conference, Orleans. (Keynote speaker).
2016 April	"Volatility During the Financial Crisis Through the lens of High frequency Data: A Realized GARCH Approach". "Macroeconomic and Financial Imbalances and Spillovers" Prague.
2016 May	"A Factor Model with Realized Measures: An application to the Fama-French Three-Factor Structure". Financial Econometrics Conference: Celebrating 30 Years of GARCH. Toulouse.
2016 September	"VIX Pricing and the Variance Risk Premium with Realized GARCH". New Developments in Measuring and Forecasting Financial Volatility. UNC/Duke Conference.
2016 September	"VIX Pricing and the Variance Risk Premium with Realized GARCH". New Developments in Measuring and Forecasting Financial Volatility. QRFE Finance/Econometrics workshop at Durham University, UK.
2016 December	"Parameter Estimation with Out-of-Sample Objective". Triangle Econometrics Conference.
2016 December	"Exchange Rate Volatility Forecasting: a Multivariate Realized GARCH Approach". EC2 Conference on Big Data, Toulouse, France.
2017 March	"Mind the Gap: An Early Empirical Analysis of SEC's 'Tick Size Pilot Program'". Copenhagen-Vienna Conference, Vienna, Austria.
2017 April	"Mind the Gap: An Early Empirical Analysis of SEC's 'Tick Size Pilot Program'". Applied Time Series Workshop at Federal Reserve Bank of St. Louis.
2017 May	"Measuring and Modeling Financial Volatility with Applications". Methods and Advances in Macro Finance, Chicago.
2017 June	"Measuring and Modeling Financial Volatility". North American Summer Meetings of the Econometric Society, St. Louis.
2017 June	"Mind the Gap: An Early Empirical Analysis of SEC's 'Tick Size Pilot Program'". IAAE 2017 – Annual Conference of the International Association for Applied Econometrics, Sapporo, Japan. (Keynote speaker).
2017 September	"Mind the Gap: An Early Empirical Analysis of SEC's 'Tick Size Pilot Program'". 7th Konstanz - St. Gallen Workshop on Computational Social Sciences. St. Gallen, Switzerland.
2017 October	"A Dynamic Model of Vaccine Compliance: How Fake News Undermined the Danish HPV Vaccine Program". Trends in Econometrics: Big Data, Machine Learning and Financial Econometrics. Rio de Janeiro, Brazil.
2017 October	"Mind the Gap: An Early Empirical Analysis of SEC's 'Tick Size Pilot Program'". Third International Workshop in Financial Econometrics. Porto Seguro, Brazil.
2017 December	"A Dynamic Model of Vaccine Compliance: How Fake News Undermined the Danish HPV Vaccine Program". 28th $(EC)^2$ conference on Time-varying Parameter Models. Amsterdam.
2018 February	"Parameter Estimation with Out-of-Sample Objective". Waseda International Symposium. Tokyo, Japan.

2018 March	"Limit Theory for the Long Run Variance of Finite Markov Chains". Kagawa International Symposium, Japan.
2018 March	"A Dynamic Model of Vaccine Compliance: How Fake News Undermined the Danish HPV Vaccine Program". Kochi International Seminar, Japan.
2018 April	"On the Modeling of Covariance Matrices". 4th Financial Econometrics and Risk Management conference, Toronto, Canada.
2018 June	"A Dynamic Model of Vaccine Compliance: How Fake News Undermined the Danish HPV Vaccine Program". CCER Summer Institute, Yantai, China.
2018 September	"On the Modeling of Covariance Matrices". 60^{th} Birthday Conference for Tim Bollerslev, San Diego.
2019 March	"A Dynamic Model of Vaccine Compliance: How Fake News Undermined the Danish HPV Vaccine Program". INET Cambridge score conference. Cambridge UK.
2019 June	"A New Parametrization of Correlation Matrices". IAAE 2019, Annual Conference of the International Association for Applied Econometrics, Cyprus.
2019 October	"A Multivariate Realized GARCH Model". Evento Itau/Econometria. Sao Paolo, Brazil.
2019 October	"A New Parametrization of Correlation Matrices". Fourth International Workshop in Financial Econometrics. Maceió, Brazil.
2019 November	"A Multivariate Realized GARCH Model". 3rd Annual Workshop on Financial Econometrics (Keynote speaker), Orebro, Sweden.
2020 December	"A canonical representation of block matrices". The 31st EC^2 Conference "High dimensional modelling in time series" at ENSAE/ESSEC, Paris (held remotely).
2022 June	"Finite Sample Properties of a Vector Representation of Correlation Matrices". The Vienna–Copenhagen Conference on Financial Econometrics, Copenhagen, Denmark.
2022 June	"Periodicity in Cryptocurrency Volatility and Liquidity". Quantitative Finance and Financial Econometrics, Marseille, France.
2022 June	"A canonical representation of block matrices". Conference of the International Association for Applied Econometrics, London, UK.
2022 June	"Option Pricing with Time-Varying Volatility Risk Aversion". Annual Conference of the Society for Financial Econometrics, Cambridge, UK.
2022 July	"A New Parametrization of Correlation Matrices". New Trends and Developments in Econometrics, Ponta Delgada, Azores, Portugal.
2023 May	"Robust Estimation of Realized Correlation". Barcelona Workshop in Financial Econometrics, Barcelona, Spain.
2023 May	"Amazing Properties of a Parametrization of Correlation Matrices". Aarhus Workshop in Econometrics II, Aarhus, Denmark.
2023 June	"Robust Estimation of Realized Correlation". Advances in Financial Econometrics, a conference in honor of Torben G. Andersen, Copenhagen, Denmark.
2023 June	"Multivariate Realized GARCH". Society for Financial Econometrics 15^{th} Annual Conference, Seoul, South Korea.
2023 June	"Robust Estimation of Realized Correlation". Volatility Conference, Singapore.

2023 July	"Advancing Covariance Modeling: A Novel Parametrization of Correlation Matrices". Risk Management in Times of Digital and Circular Economy, Florence, Italy.
2023 September	"Robust Estimation of Realized Correlations". Advances in Econometrics In Honor of Joon Y. Park, Bloomington, Indiana.
2023 October	"Robust Estimation of Realized Correlations". B3 Conference, Sao Paolo, Brazil.
2023 October	"Science in an Era of Misinformation". 5th International Workshop in Financial Econometrics, Santo André, Brazil.
2024 April	"An Econometric Journey Through Danish Health Data: Before and During the Pandemic". DAEiNA 2024, Northwestern University. (Keynote speaker).
2024 May	"Convolution-t Distributions". CIREQ-CMP Econometrics Conference in Honor of Eric Ghysels, Montreal.
2024 May	"Convolution-t Distributions". Financial Econometrics Conference, Toulouse School of Economics, France.
2024 May	"Convolution-t Distributions". Ole E. Barndorff-Nielsen Memorial Conference, Aarhus, Denmark.
2024 August	"Convolution-t Distributions". Econometrics in Rio.
2024 September	"Robust Estimation of Realized Correlations". NBER-NSF 2024 Time-Series Conference, Philadelphia.
2024 December	"Cluster GARCH". EC^2 Conference on Unravelling Misspecification and Identification in Econometrics, Amsterdam.
2025 March	"Tracing the Evolution of HAC Estimators". Conference in Honor of Frank Diebold, University of Pennsylvania, Philadelphia.
2025 April	"Moments by Integrating the Moment-Generating Function". The 2025 Kansas Econometrics Workshop, University of Kansas, Lawrence.
2025 May	"Moments by Integrating the Moment-Generating Function". DAEiNA 2025, Copenhagen, Denmark.

Seminar Presentations

1999	European University Institute (EUI) Florence, Italy.
	University of California, San Diego.
2000	University of Toronto.
	University of Indiana, Bloomington.
	Purdue University, Lafayette.
	Arizona State University.
	University of Virginia.
	Duke University.
	Brown University.
	University of Texas, Austin.
	University of Western Ontario.

	Lehman Brothers, New York.
	University of British Columbia, Vancouver.
	University of California, Riverside.
	European University Institute (EUI), Florence.
	Brown University.
	University of Aarhus, Denmark.
2001	University of Copenhagen, Denmark.
	University of Aarhus.
	Brown University.
	University of British Columbia, Canada.
	Brown University.
	Princeton University.
	University of Pennsylvania.
	Harvard University/MIT.
	U. of Copenhagen, Department of Statistics and Operations Research.
2002	European Central Bank (ECB), Frankfurt, Germany.
	University of Amsterdam.
	University of California, Riverside.
	Federal Reserve Bank of New York.
	University of Montreal.
2003	Federal Reserve Bank of Atlanta.
	Stanford University.
	University of California, Berkeley.
	Tilburg University.
	University of Amsterdam.
	University of California, San Diego.
	University of Columbia.
	New York University.
	University of Montreal.
	University of Concordia.
	Boston University.
2004	Stanford University.
	University of California, Davis.
	Arizona State University.
	University of Copenhagen, CAM.
	Emory University.
	Federal Reserve Bank of Atlanta.

	London School of Economics.
	City University London, CASS.
	Queen Mary College, London.
	Copenhagen Business School (Nationaløkonomi).
	University of Copenhagen (Statistics).
	University of Aarhus.
	Universitat Pompeu Fabra.
	Carnegie Mellon University.
	Vanderbilt University.
	Princeton University.
2005	University of Chicago.
	University of Houston/Rice University.
	University of California, Berkeley.
	Stanford University, Graduate School of Business.
	Stanford University (Financial Mathematics).
	University of California, San Diego.
	University of Aarhus.
	University of Wisconsin
	Oxford University, Nuffield College.
2006	University of Washington, Seattle.
	Federal Reserve Bank of St. Louis.
	University of California, Davis.
	University of Zurich.
	Federal Reserve Bank, Board of Governors, Washington DC.
	European Central Bank/Bundesbank/Frankfurt.
	ECARES, Brussels.
2007	HEC, Montreal.
	Texas A&M.
	Louisiana State University.
	University of Oxford, Oxford-Man Institute
	University of Pennsylvania.
	CREATES, University of Aarhus.
2008	Federal Reserve Bank of San Francisco.
	University of California, Berkeley.
	University of California, San Diego.
	Federal Reserve Bank, Board of Governors. Washington DC (2xseminar)
	Columbia University.

	Bank of Japan, Tokyo.
2009	Singapore National University.
	Stanford, Dept. of Statistics.
	University of Southern California.
	University of Aarhus.
	University of Michigan.
	Yale University.
	University of Warwick.
	University of Chicago.
	Duke University.
2010	Humboldt University, Berlin.
	Einaudi Institute, Rome.
	Banca d'Italy Rome.
	University of California, Berkeley.
	Federal Reserve Bank, San Francisco.
	Bank of Japan, Tokyo.
	Hitotsubashi University.
	ETH, Zurich
	Toulouse University
	European University Institute
2011	University of California, Riverside
	University of Warwick
	Triangle Seminar (Duke/UNC/NCSU).
	Singapore Management University
	Universidad Carlos III de Madrid
	Bologna University
2012	University of Firenze
	Tinbergen Institute, Amsterdam
	Peking University
	Instituted for Advanced Studies, Vienna
	Universitat Pompeu Fabra
	CORE, Brussels, Belgium
2013	European University Institute
	University of Hong Kong
	Singapore Management University
	Central European University
	University College London

	University of Helsinki
	Pontifical Catholic University of Rio de Janeiro
	Central Bank of Brazil, Brasilia.
	University of Pennsylvania, Philadelphia.
	Pennsylvania State University, State College.
2014	Cambridge University, Cambridge, UK.
	University of Oxford, Nuffield College.
	New Economic School, Moscow.
	Monash University, Melbourne, Australia
	Duke University
	University of North Carolina
	European University Institute
	Copenhagen Business School
	Pennsylvania State University
2015	Tinbergen Institute, Amsterdam
	Paris X, Nanterre
	University of Montreal
	Bank of Italy, Rome
	Tilburg University
	Tinbergen Institute, Rotterdam
2017	University of North Carolina, Chapel Hill
	Chicago Booth
	University of Konstanz
	European University Institute
2018	Paris Nanterre University
	Michigan State University
	Southwestern University of Finance and Economics, Chengdu, China
	University of Maryland
	Princeton University
2019	Oxford University
	Bank of England, London
2020	National University of Singapore
	Singapore Management University
	University of Pennsylvania (remote)
	Stanford University (remote)
2021	Boston University (remote)
	University of Aarhus (remote)

	University of Vienna
2022	University of Essex (remote)
	Penn State University
	Emory University
	University of Notre Dame
	Chinese University of Hong Kong (remote)
	Stanford University
2023	University of Chicago, Booth
	Washington University, St. Louis
2024	University of Aarhus
	North Carolina State University
	York University
	Universitat de les Illes Balears, Mallorca, Spain
	Duke University
	University of California, San Diego
	Linnaeus University, Sweden
	University of Copenhagen
	University of Aarhus
2025	Duke University
	Universidad Carlos III de Madrid (UC3M)

Professional Activities

Editorial:	Associate Editor of Econometrics Journal (2023-)
	Associate Editor of Journal of Financial Econometrics (2019-)
	Associate Editor for *Econometric Theory* (2012-)
	Associate Editor for *Quantitative Economics* (2014-2020)
	Associate Editor of Journal of Econometrics (2020-2023)
	Foreign Editor at the *Review of Economic Studies* (2017-2020)
	Associate Editor for the *Journal of Applied Econometrics* (2010-2018)
	Econometric Methods (2011-2015)
Memberships:	Econometric Society and Society for Financial Econometrics.
Referee:	American Economic Review, Econometric Theory, Econometrica, Econometrics Reviews, Economics Bulletin, Economics Letters, Journal of Applied Econometrics, Journal of Business and Economic Statistics, Journal of Forecasting, Scandinavian Journal of Economics, Studies in Nonlinear Dynamics and Econometrics, International Economic Review, Journal of

Mathematical Economics, Journal of Economic Dynamics and Control, Journal of Money Credit and Banking, Journal of Econometrics, Bernoulli.

Other: Proposal reviewer for National Science Foundation.

Student Advising and Post Doc Mentoring

Post Docs Elena-Ivana Dumitrescu (2012-2013), Janine Balter (2012-2013). Denisa Banulescu (2014-2015).

Ph.D. Students **Brown University**: Zarina Abidin (2001), Hyung-Kwon Chung (2001). **Stanford University**: Peyron Law (2005), Jesse Czelusta (2005), Azeem Shaik (2006), *Albert Chun* (2006), *Joao Azevedo* (2007), Andreas Santos (2007), *Guillaume Horel* (2007), *Wei Wu* (2009), *Howan Shek* (2010), *Zhou Huang* (2010). **EUI**: *Reinhard Ellwanger* (2015), *Ilya Archakov* (2016). *Robert Goodhead* (2018). *Matthias Schmidtblaicher* (2020). **UNC**: Hanwei Liu (2017), Gonzalo Asis (2018), Jose Alfonso Campillo (2018), Ryan Leary (2018), Karley Stedman (2019), Jay Dennis (2019), Anessa Custovic (2020), Andrew Hanson (2020), Yan Qian (2023), *Yiyao Luo* (2023), *Chan Kim* (2023), Yan Qian (2023), Jusun Pan (2024), Yanru Lee (2024). **Duke**: Saketh Aleti (2024)

Undergraduate: Honors Thesis advisor. **Brown University**: Edward van Wesep (2002). **Stanford University**: Youngjun Jang (2007), Ashsish Sehnoy (2008), Rohan Tandon (2009). **UNC**: Zijun Tian (2017), Tyler Gwinn (2019), Morgan White (2021), Jimmy Zheng (2024).