BANK OF ENGLAND

KING'S College LONDON

# Call for Papers

# Modelling with Big Data and Machine Learning:

# Interpretability and Model Uncertainty

***04-05 November 2019*, Bank of England, London**

The confluence of access to large granular data sources ('Big Data') and the rapid advance of modelling techniques like those from machine learning (ML) promises new insights into the economy and a larger information set for policymakers. The Bank of England (BoE) and the Data Analytics for Finance and Macro (DAFM) Research Centre at King's College London have recently initiated a series of annual scientific conferences to discuss these advances.

Our events aim both to discuss recent developments and, crucially, focus on particular aspects of Big Data and ML approaches which are of increased interest to applied researchers. Two such aspects form the focus of this two-day conference. The first relates to a commonly cited weakness of ML methods when applied to economic problems and data, which is lack of interpretability of ML model outputs. This makes the adoption of such models difficult for economists who wish to have a more structural understanding of the underlying economic issues. The second, and related, focus is on the estimation and/or calibration of the uncertainty associated with model outputs. Both these matters have not received as much attention in the mainstream ML literature as economists would like to.

We invite you to submit empirical, methodological or theoretical work leveraging on new granular data sources or exploring recent analytical development addressing the above issues and which can be relevant to economic and financial studies or decision making. A focus on interpretability of, and uncertainty around, modelling outputs is particularly welcome. The conference aims to provide an opportunity to discuss recent scientific advances, especially with a focus on problematics expounded above, as well as to connect with policy makers and academics.

**We will consider submissions covering a wide range of topics including:**

- Large granular structured or unstructured data sources, e.g. administrative data, web data, from the "digital exhaust", text data.
- Machine Learning for prediction and understanding the economy and its interpretation.
- Interpretability and uncertainty measurement of non-parametric methods, e.g. ML.
- Data methods, e.g. matching, filtering or cleaning techniques.
- Theory, e.g. estimation with many covariates or strong non-linearities, model and estimation uncertainty of ML approaches.

**Currently confirmed keynote speakers:**

- **Francis X. Diebold** (University of Pennsylvania)
- **Francesca Toni** (Imperial College London)

The event is free of charge for all participants. Financial support for travel can be provided for authors of accepted papers. Papers will be presented and discussed. The **deadline** for submissions is ***4 August 2019***. Upon submission, **please indicate** if you would be available to discuss another paper within your field of expertise. Please submit your full paper to dafm@kcl.ac.uk. Full papers are preferred but extended abstracts will be accepted in exceptional cases. Final **decisions** will be made by ***8 September 2019.*** Authors of accepted papers will be asked to provide a final draft of their paper latest two weeks ahead of the event to allow enough time for discussants to prepare. For further enquiries about submissions and papers, please contact dafm@kcl.ac.uk. For questions regarding event logistics please contact ccbsinfo@bankofengland.co.uk and andreas.joseph@bankofengland.co.uk.

**Event information & registration:** http://www.cvent.com/d/v6qg03

**Important Dates:**

- **4 August 2019:** submission deadline
- **8 September 2019:** author notification
- **20 October 2019:** submission of final version of accepted papers
- **20 October 2019:** registration deadline
- **4 – 5 November 2019:** conference

**Scientific Committee:**

- **Andrew Blake** (BoE)
- **Mingli Chen** (University of Warwick)
- **Stephen Hansen** (University of Oxford)
- **Andreas Joseph** (BoE & DAFM)
- **George Kapetanios** (Committee Chair, King's College London; DAFM)
- **Christopher Kurz** (Federal Reserve Board)
- **Fotis Papailias** (King's College London, DAFM)
- **Chris Redl** (BoE & DAFM)

**Local Organising Committee:**

- Andrew Blake
- Andreas Joseph
- George Kapetanios
- Fotis Papailias