BANCA D'ITALIA
EUROSISTEMA

Workshop on "Big Data & Machine Learning Applications for Central Banks"
Rome, 21-22 October 2019
(Bank of Italy's Conference Center "Carlo Azeglio Ciampi" – Via Nazionale, 190, Roma)

PROGRAM

Monday, 21 October 2019

8:30   **Registration**

         Welcome address

9:00   **Luigi Cannari**

         (Deputy Head of Directorate General for Economics, Statistics and Research, Bank of Italy)

         Session 1: Text and Central Bank Communication

         Chair: Juri Marcucci (Bank of Italy)

9:15   **Sentiment in central banks' financial stability reports**

         Ricardo Correa (Federal Reserve Board)

         Discussant: Giuseppe Bruno (Bank of Italy)

9:55   ***It's not what they say it's how they say it - the impact of the tone of ECB Governing Council speeches on financial markets***

         Conor Parle (Central Bank of Ireland)

         Discussant: Ricardo Gimeno (Banco de España)

10:35   **Coffee Break**

         Session 2: Text and Economics

         Chair: Gianni Amisano (Federal Reserve Board)

11:05   ***Deriving economic indicators from a large corpus of Italian documents***

         Pasquale Cariello (Bank of Italy)

11:25   ***News and Banks' Equities: Do words have predictive power?***

         Valerio Astuti (Bank of Italy)

         Discussant: Federico Maria Ferrara (European Central Bank)

         Session 3: Big data and ML: experiences from other institutions

         Chair: Jermy Prenio (Bank for International Settlements)

12:00   ***Big Data & Machine Learning at the IMF***

         Marco Marini (International Monetary Fund)

12:20   ***Big Data, Machine Learning and Quantum Computing at Riksbank***

         Isaiah Hull (Sveriges Riksbank)

| 12:40 | **Lunch and Poster Session** |

Session 4: Forecasting with Machine Learning

Chair: Thomas Gottron (European Central Bank)

| 14:10 | *Neural Networks for Macroeconomic Forecasting* |

Sabina Marchetti (Bank of Italy)

| 14:30 | *Corporate Default Forecasting with Machine Learning* |

Mirko Moscatelli (Bank of Italy)

Discussant: Isaiah Hull (Sveriges Riksbank)

| 15:10 | *Forecasting Banknote Flows in the BDI Branch Network: speed up with Machine Learning* |

Marco Brandi (Bank of Italy)

Session 5: Big data for national statistics

Chair: Joseph Hickey (Bank of Canada)

| 15:30 | *Big data–based national statistical production* |

Alessandra Righi (ISTAT)

Discussant: Giuseppe Arbia (Catholic University of Milan)

| 16:10 | **Coffee Break** |

Session 6: Machine Learning, Suptech/Regtech and AML

Chair: Luca Onorante (European Central Bank)

| 16:40 | *Suptech applications in anti-money laundering: A review of best international practices* |

Jermy Prenio (Bank for International Settlements) and **Marco De Simoni** (UIF, Bank of Italy)

| 17:00 | *New Frontiers for Network Analysis in anti-money laundering: Challenges and Opportunities* |

*Eleonor*a **Laurenza** (UIF, Bank of Italy)

Discussant: Dirk Broeders (De Nederlandsche Bank)

| 17:40 | **Panel Discussion: Other Central Banks' perspective** |

Chair: Giuseppe Bruno (Bank of Italy).

Gianni Amisano (Federal Reserve Board), **Dirk Broeders** (De Nederlandsche Bank), **Tobias Cagala** (Deutsche Bundesbank), **Vijay Chowdhury** (Bank of England), **Joseph Hickey & Patrick Labelle** (Bank of Canada), **Luca Onorante** (European Central Bank), **Javier Perez** (Banco de España)

| 18:45 | **Aperitivo** |

| 19:30 | **End of first day** |

Tuesday, 22 October 2019

Session 7: Machine learning applications
Chair: Javier Perez (Banco de España)

8:30 **Cross-country differences in the size of venture capital financing rounds. A machine learning approach**

Marco Taboga (Bank of Italy)

Discussant: Tobias Cagala (Deutsche Bundesbank)

9:10 ***Institutional sector classifier: a machine learning application,***

Paolo Massaro (Bank of Italy) and **Oliver Giudice** (Bank of Italy)

9:30 ***Supervised Learning and Rare Events,***

Tobias Cagala (Deutsche Bundesbank)

Discussant: Mirko Moscatelli (Bank of Italy)

10:10 ***Weaving the Property Graph of Company Ownerships,***

Luigi Bellomarini (Bank of Italy)

10:30 **Coffee Break**

Session 8: Machine learning for statistical production
Chair: Conor Parle (Central Bank of Ireland)

11:00 ***Imputation Techniques for the Nationality of Foreign Shareholders in Italian Firms***

Andrea Carboni (Bank of Italy)

Discussant: Gianluca Cubadda (University of Rome Tor Vergata)

11:40 ***Quality checks on granular banking data: an experimental approach based on machine learning***

Fabio Zambuto (Bank of Italy)

Discussant: Roberto Rocci (Sapienza University of Rome)

Closing Remarks

12:20 **Daniele Franco**

(Member of the Governing Board and Deputy Governor, Bank of Italy)

12:40 End of workshop

Organizing committee: Luigi Cannari, Pasquale Cariello, Giuseppe Bruno, Juri Marcucci.

The conference will be held in English language.[1]
This program may be subject to change without notice.

Poster Session

1) "Policy Uncertainty and Consumer Card Payments", Guerino Ardizzi[◊], **Simone Emiliozzi**[◊], Juri Marcucci[◊], and Libero Monteforte[*] ([◊]Bank of Italy, [*]Parliamentary Budget Office)

2) "Machine learning and plausibility checking of regulatory data", **Joshua Allen**[*] ([*]Bank of England)

3) "Selection of short term indicators in temporal disaggregating Italian national accounts", Marianna Ascione[*], and **Filippo Moauro**[*] ([*]ISTAT)

4) "The rental market in Italian cities", **Michele Loberto**[◊] ([◊]Bank of Italy)

5) "How Much Information Do Monetary Policy Committees Disclose? Evidence from the FOMC's Minutes and Transcripts", Mikael Apel[*], Marianna Blix Grimaldi[*], and **Isaiah Hull**[*] ([*]Sveriges Riksbank)

6) "Anomaly detection in payment systems", Luca Arciero[◊], Giuseppe Bruno[◊], **Sabina Marchetti**[◊], Juri Marcucci[◊] ([◊]Bank of Italy)

7) "Capital Flights and News, some Stylized Facts: An Empirical Study Using Daily Data Before and During the Greek Crisis" Petralias Athanassios[*], and **Papaspyrou Marios**[*] ([*]Bank of Greece)

8) "Record Linking for Entities in RIAD using Deep Neural Networks", **Thomas Gottron**[*] ([*]European Central Bank)

9) "Measuring economic sentiment : a text mining approach", Hyeyoung Lee[*], Gyutae Kim[*], Moonhee Lee[*], Younghwan Lee[*], and **Hee-Jin Hwang**[*] ([*]Bank of Korea)

10) "A data-driven approach to build Financial index", **Alessandro Bitetto**[*], and Paola Cerchiello[*] ([*]University of Pavia)

11) "Large Files Technical Validation using MapReduce", **Armando Flores Diaz**[*] ([*]Banco de México)

CONFERENCE INFORMATION:

Presentations in Plenary Sessions:

- Presentations with a discussant are expected to last <u>20 minutes</u>, followed by a <u>10-minute discussion</u> by the discussant and <u>10 minutes</u> for <u>general discussion</u> from the audience.
- Presentations without a discussant are expected to last <u>15 minutes</u>, followed by a <u>5-minute</u> general discussion from the audience. The discussant in Sessions 2 and 6 will discuss both presentations.
- The <u>panel discussion</u> will be held under the Chatham House rule.

<u>Poster Session</u>: Poster should be **B1,** i.e. **70 cm x 100 cm** either portrait or landscape and they will be attached on the wooden wall during the lunch break on October 21.

<u>Conference venue</u>: Centro Convegni "Carlo A. Ciampi", via Nazionale 190, 00184 Rome, Italy
(Google maps link: https://goo.gl/maps/2ceXVWmh2b6NBAEf7)