BANK OF CANADA
BANQUE DU CANADA

OCTOBER 21, 2019

ML & AI at the Bank of Canada

Banca d'Italia Workshop on Big Data and Machine Learning Applications for Central Banks

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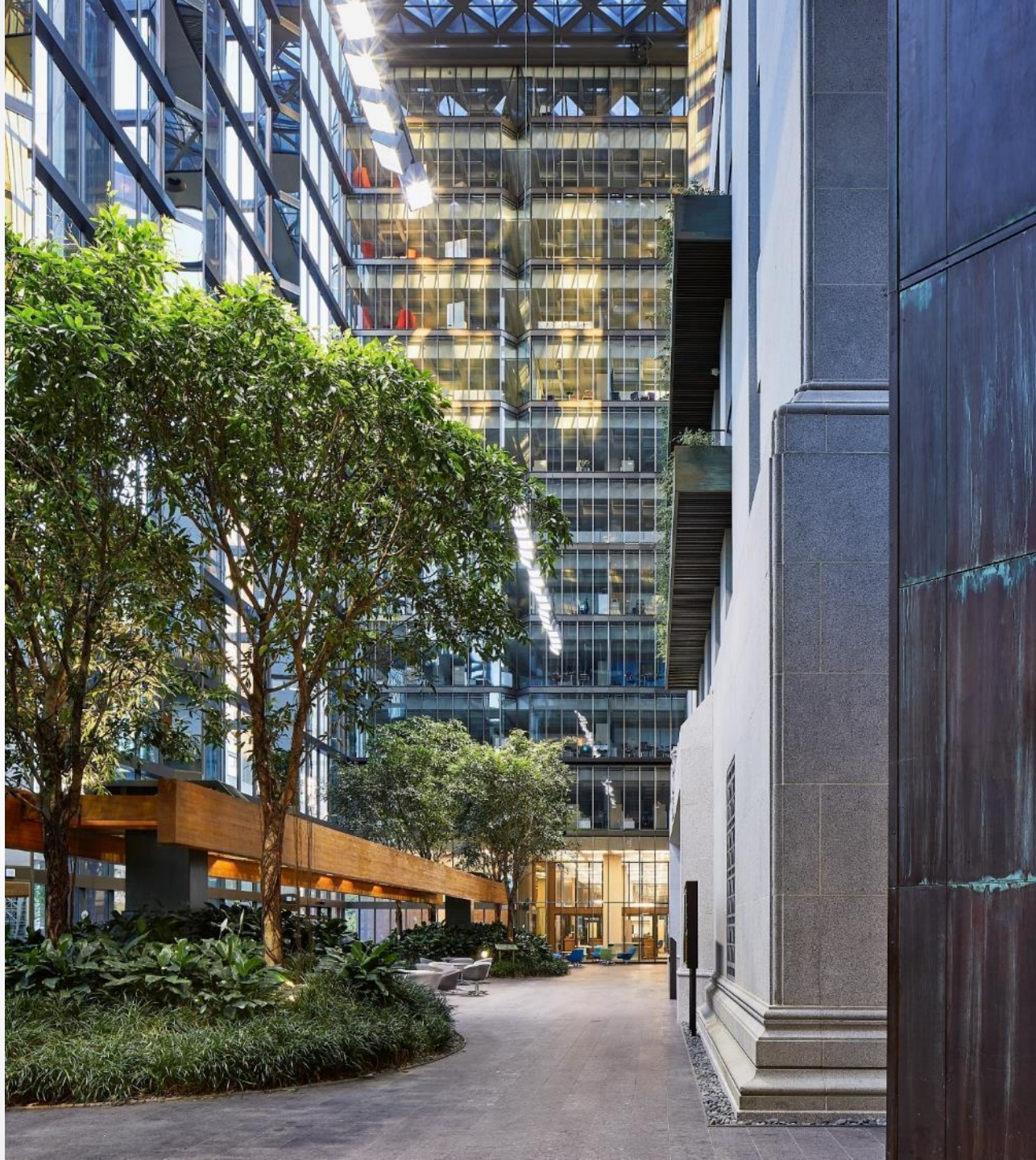

Bank of Canada – State of ML/AI

- Siloed efforts to employ ML/AI
- Emphasis on experimentation
- Varying levels of maturity across business lines
- Need for enterprise wide strategies and solutions
  - Digital @ the Bank
  - Enterprise Data and Analytics Strategy

Digital @ the Bank

"Becoming a 'Digital First' central bank"

Understand the implications of digitalization for the economy

Improve our analysis, decision making and operations by embedding a culture of **digital-first**

EDAS

"Be the leading central bank in the adoption of advanced analytics and use of data"

Leverage **data** to improve decision making, business insights and operational efficiency.

Enable and promote the responsible and secure use of data.

ML & AI

Enterprise Value

Big Data

Projects

Bank of Canada-wide

- Digital currency
  - Implications of central bank digital currency on the financial system and wider economy
- FinTech
  - Exploring how distributed ledger technology affects payment systems
- Text analytics
  - Assessing Chinese labour market conditions using newspaper text (Bailliu et al., 2019)
- Reinforcement learning in large-value payment systems
- Using microdata to measure consumer credit stress

Digital Economy and Advanced Analytics group

- Text analytics and machine learning
  - Extracting uncertainty and sentiment measures from BoC Monetary Policy Reports (Binette & Tchebotarev, 2019)
  - Creating an indicator of Canadian mining sector activity from newspaper articles
  - Predicting macroeconomic indicators from alternative time series data (e.g. media)
- Network analysis and agent-based models
  - Inter-nation sentiment network as assessed from media articles: predictor of trade developments?
  - ABMs giving rise to emergent properties, e.g. market share structure in set of competing service providers
- Digital economy
  - Internet economy, labour dynamics, inflation, and international trade

LinkedIN group

Digital Economy and Advanced Analytics

Standard group

Join the conversation with the **15 professionals** in this group

Request to join

About this group

This group is a place for discussion and information sharing about data science and the impact of digitalization on the economy. We welcome anyone with an interest in these topics to join.

We are interested in both fundamental developments and applications in data science, such as:
- text analytics
- machine learning and artificial intelligence
- agent-based modeling
- network science
- other advanced analytical techniques

While for the impact of digitalization, we are particularly interested in:

TO JOIN:

1. Send email: jhickey@bankofcanada.ca

OR

2. Search on LinkedIN for: "*Digital Economy and Advanced Analytics*"

References

- A. Binette and D. Tchebotarov, “Canada’s Monetary Policy Report: If text could speak, what would it say?”, Bank of Canada Staff Analytica Note 2019-5: https://www.bankofcanada.ca/wp-content/uploads/2019/02/san2019-5.pdf
- J. Bailliu et al., “Can media and text analytics provide insights into labour market conditions in China?” Int. J. Forecasting, 35:1118-1130 (2019)
- “Digital Economy and Advanced Analytics” LinkedIN group: https://www.linkedin.com/groups/13735610/