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Knowledge Graphs for Your Data

Finding Truth in data

Michel Barbeau

Final I Trust AI Symposium

Thursday, October 29, 2026

Knowledge graphs and friends

- Graph Analytics
- LLM
- RAG / GraphRAG
- Agentic AI

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Intuition (part 1)

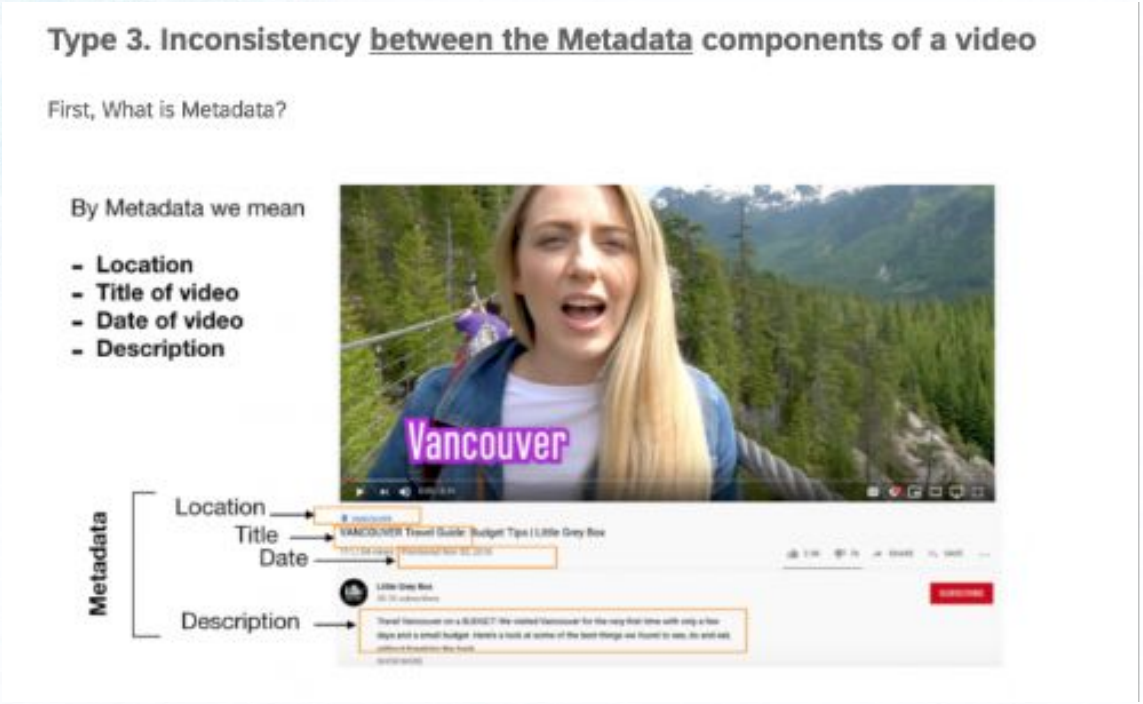


Adapted from [Garey and Johnson, 1979].

Intuition (part 2)



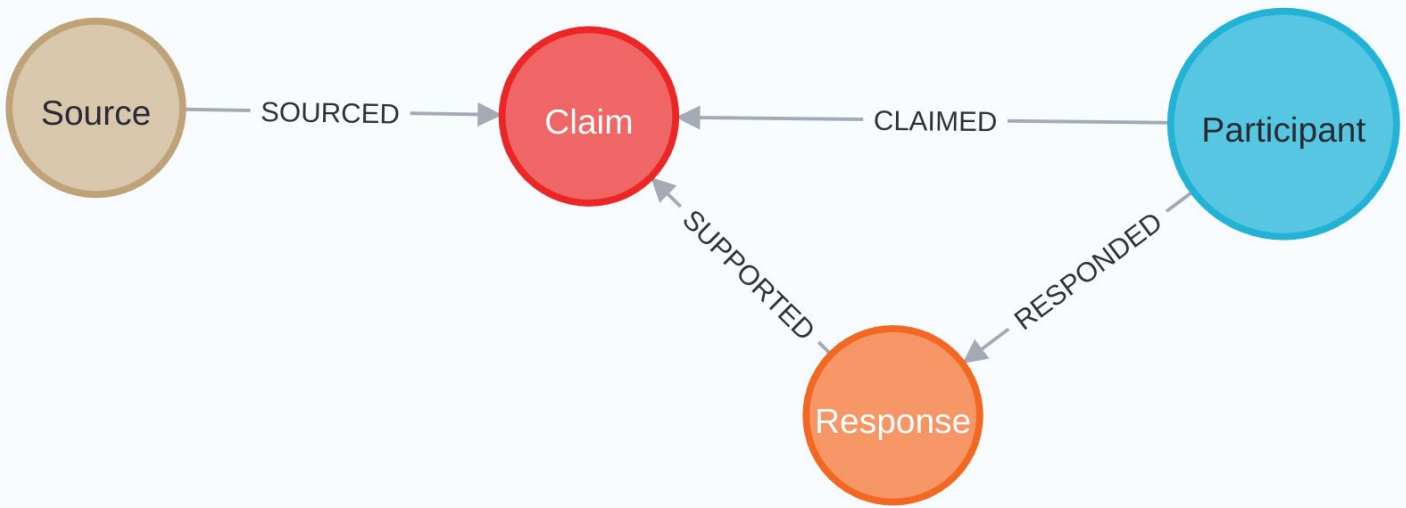
Video authenticity assessment



N. Rivard, H. Hamouda, V. Lemieux, T. P. Lauriault and M. Barbeau, "Towards a Prototype to Leverage Archival Diplomatics to Develop a Framework to Detect and Prevent Fake Videos," 2024 IEEE Digital Platforms and Societal Harms (DPSH), Washington, DC, USA, 2024.

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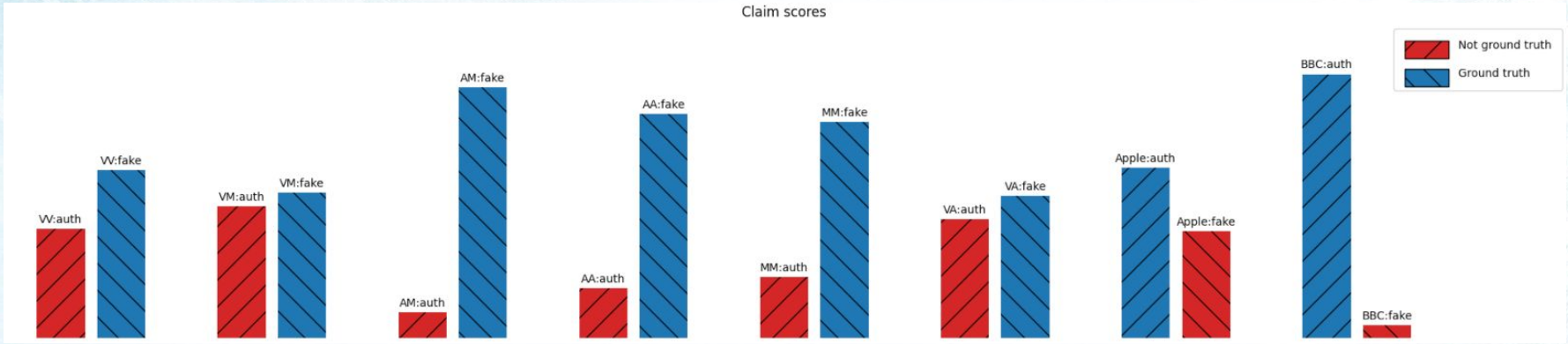
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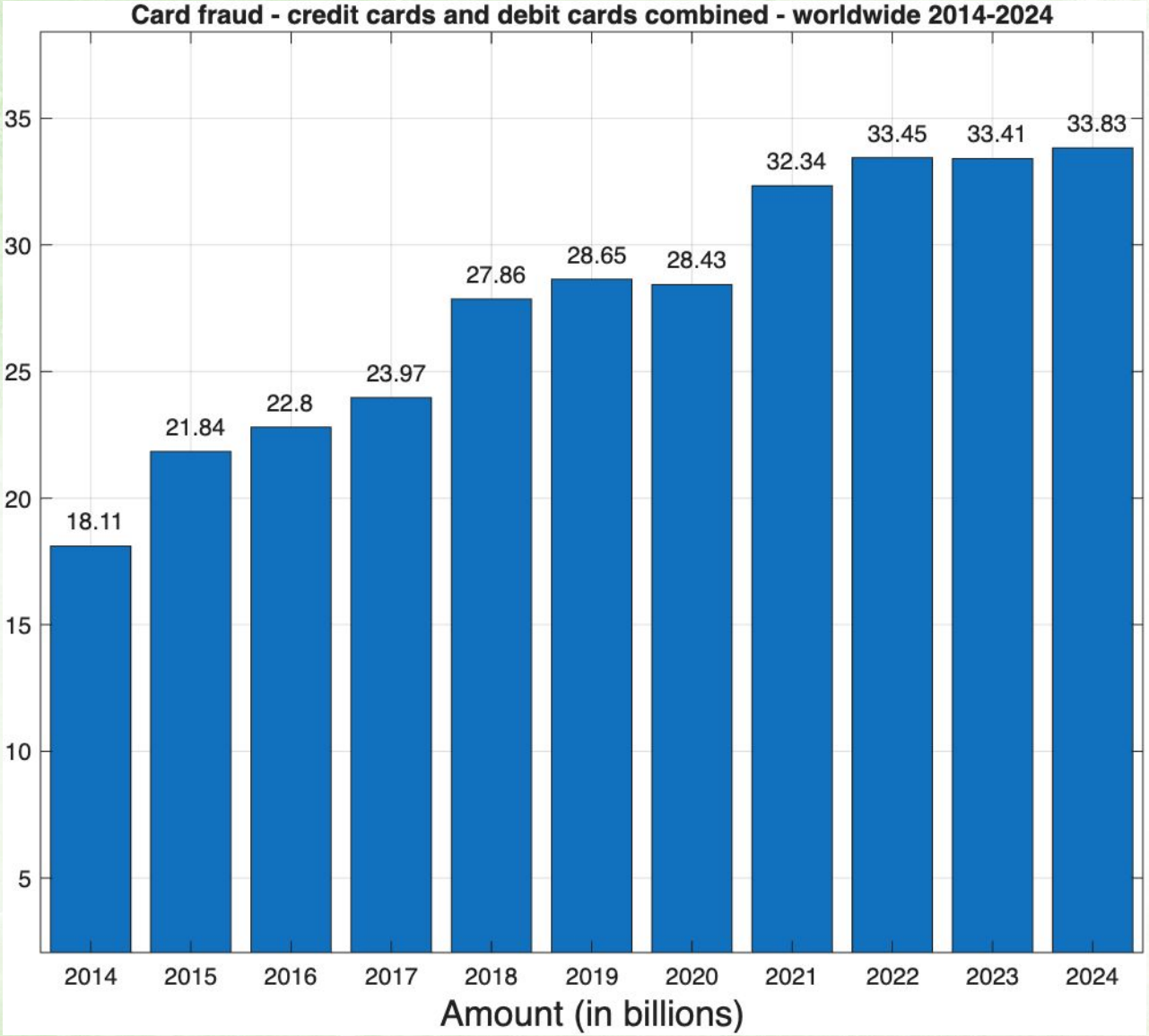
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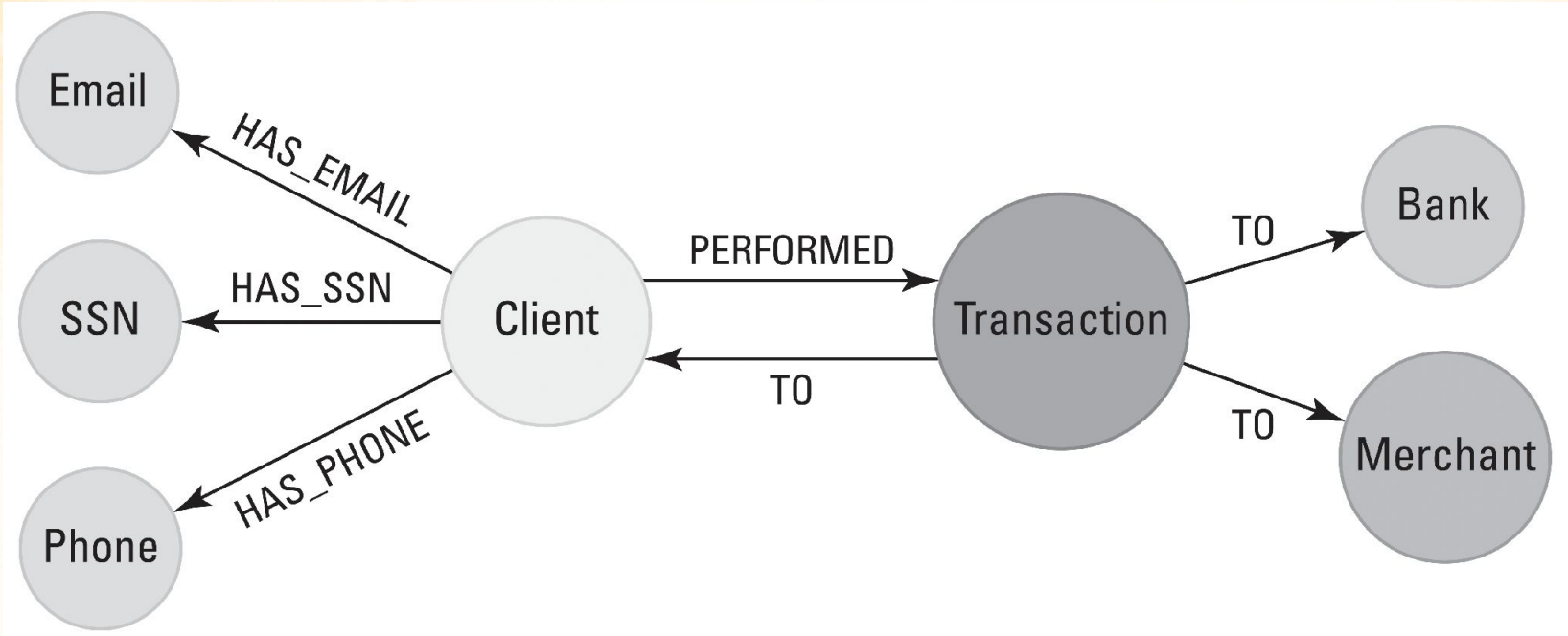
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Source: Nilson Report

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Graph representation of transactions



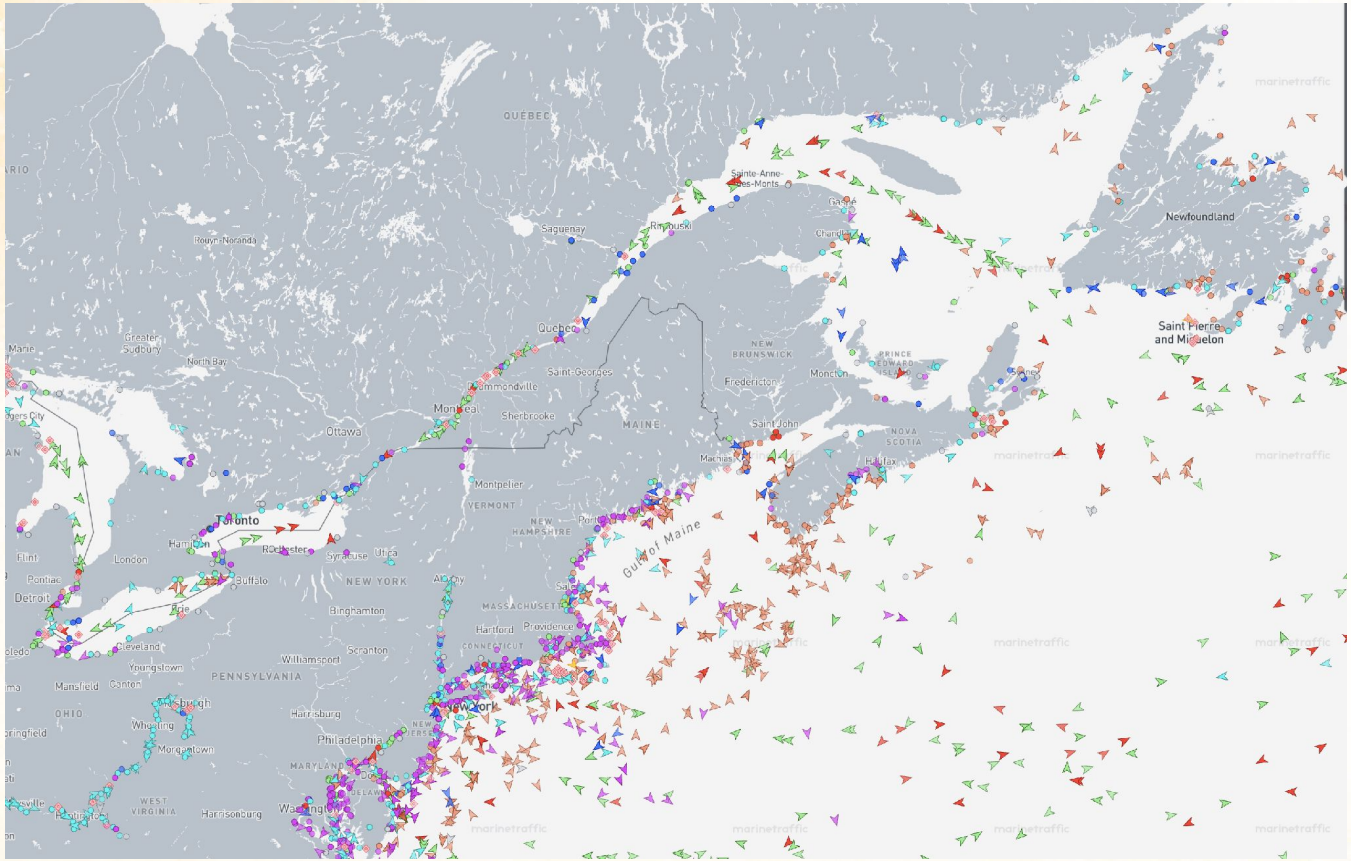
BiGRACE encoder

- Node embeddings for very large bipartite graphs
- Efficiently capture both graph structure and node features
- Edge anomaly detection tasks, and others

Frédéric Simard, Flexible Node Embeddings of Very Large Bipartite Graphs, 2026.

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Automatic Identification System (AIS)



Source: www.marinetraffic.com

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Record of AIS vessel position reports

- AIS data represented as directed acyclic graph
- Immutable distributed ledger
- Physical evidence-based consensus

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