



Innovations in Graph Analytics & ML for Deeper Insights

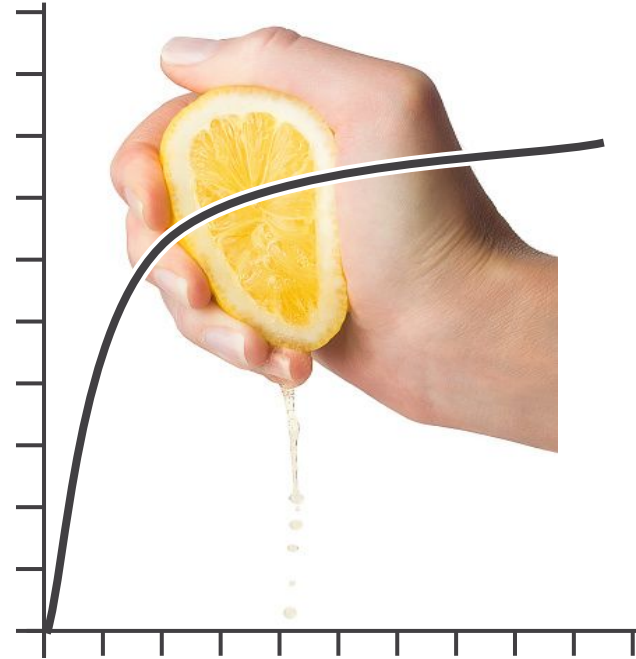
World Summit Americas AI, May 2022

Dr. Victor Lee, VP of Machine Learning/AI
TigerGraph

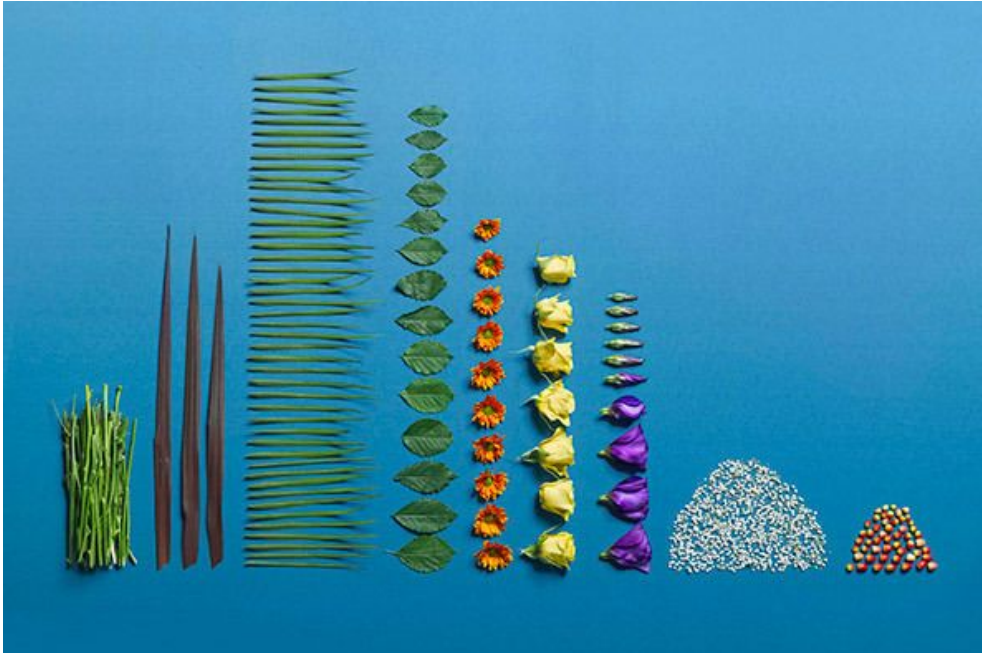


Machine Learning has reached a limit.

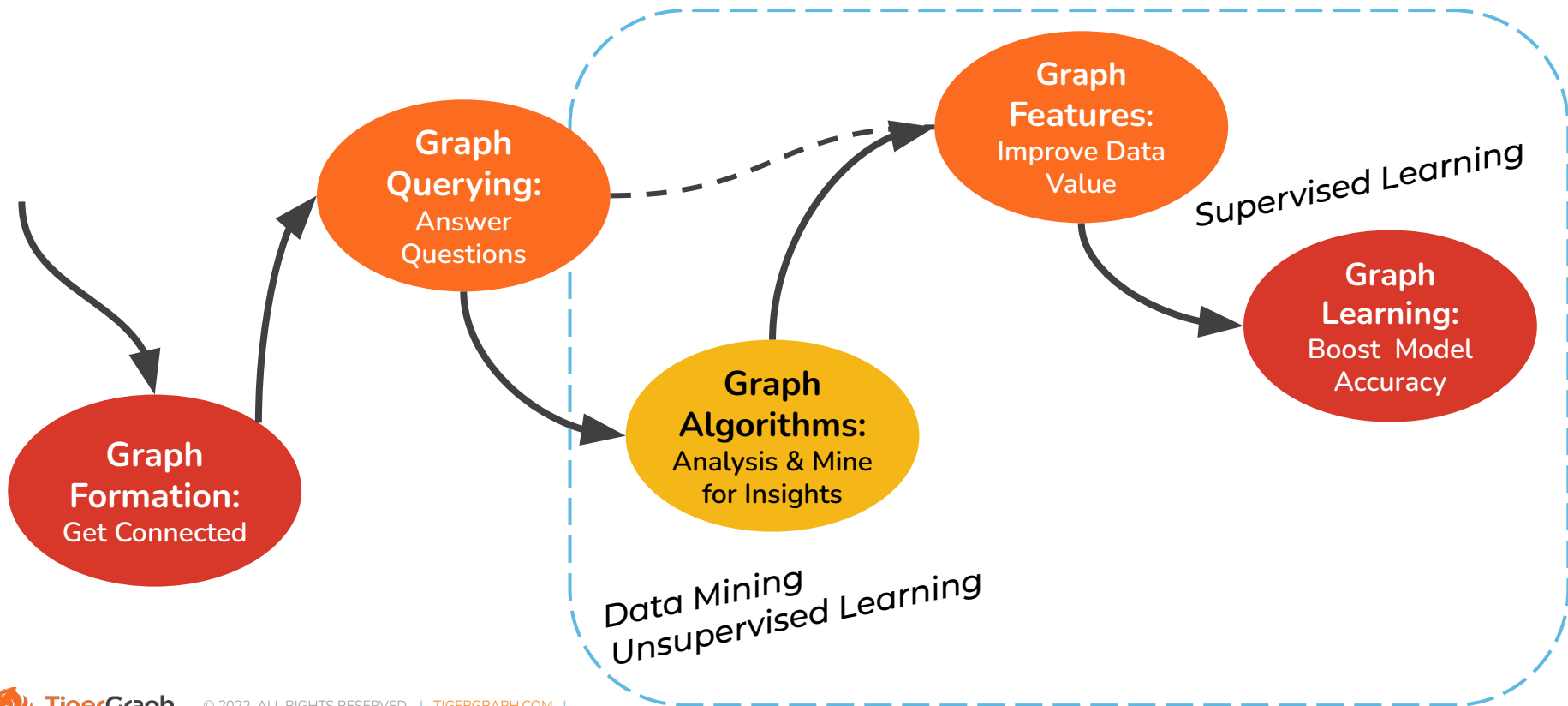
- Tuning your ML algorithms can only yield diminishing returns.
- Where to find more insight?



The answer lies in connected data.



Graph Analytics and ML: A Roadmap



Real-World Outcomes from Graph Data Science

Healthcare:

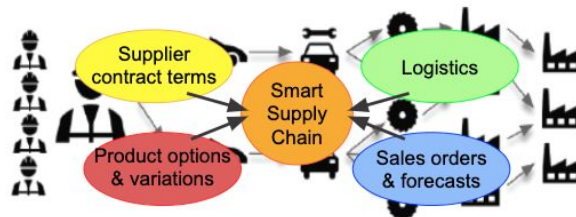
Real-time recommendations



- 1.3TB graph brain
- Real-time care recommendations
- Improving healthcare, lowering cost

Industrial Supply Chain:

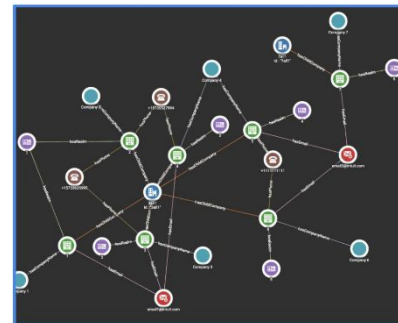
Analytics for decisions



- Analytics: weeks → minutes
- Reveal opportunities, optimize tactical & strategic decisions
- Saving \$100M+/yr

Financial Services:

Real-time fraud detection

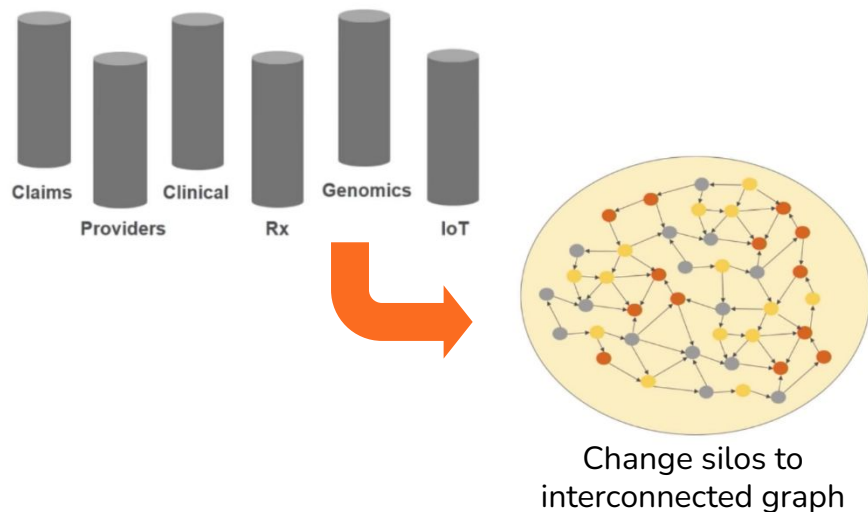


- Integrates multiple tools
- "Magical" real-time visual results for investigators
- Scalable for growth

Connect Your Data - With a Graph Database

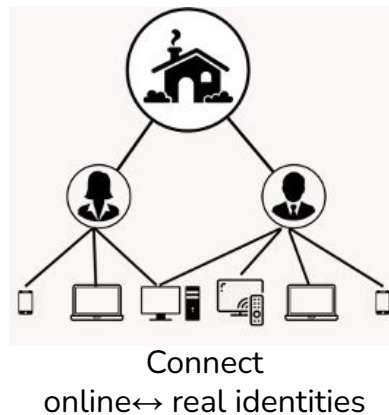
Innovations:

- Graph DBs as Cloud Services
- Distributed, Native



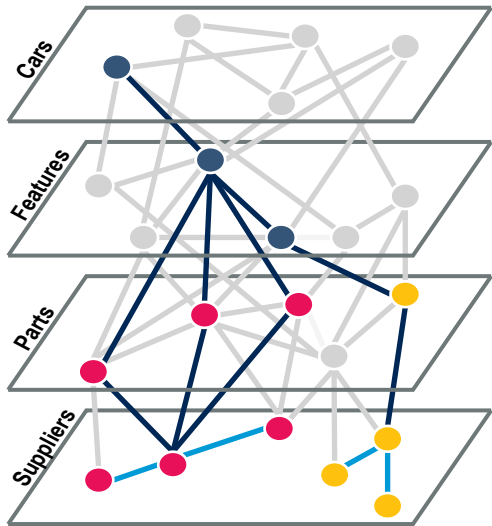
Keys to Success:

- Know your intent: Knowledge or Analytics?
- Plan for expansion



Analyze - With Graph Algorithms & Queries

Supply chain, IT network,
Delivery routing, business ops



Monitor, Optimize operations
Detect flaws, Respond

Innovations:

- Graph algorithm libraries
- Analytics-capable query language

Keys:

- Massively parallel compute
- Scalability



Shortest Path



Centrality



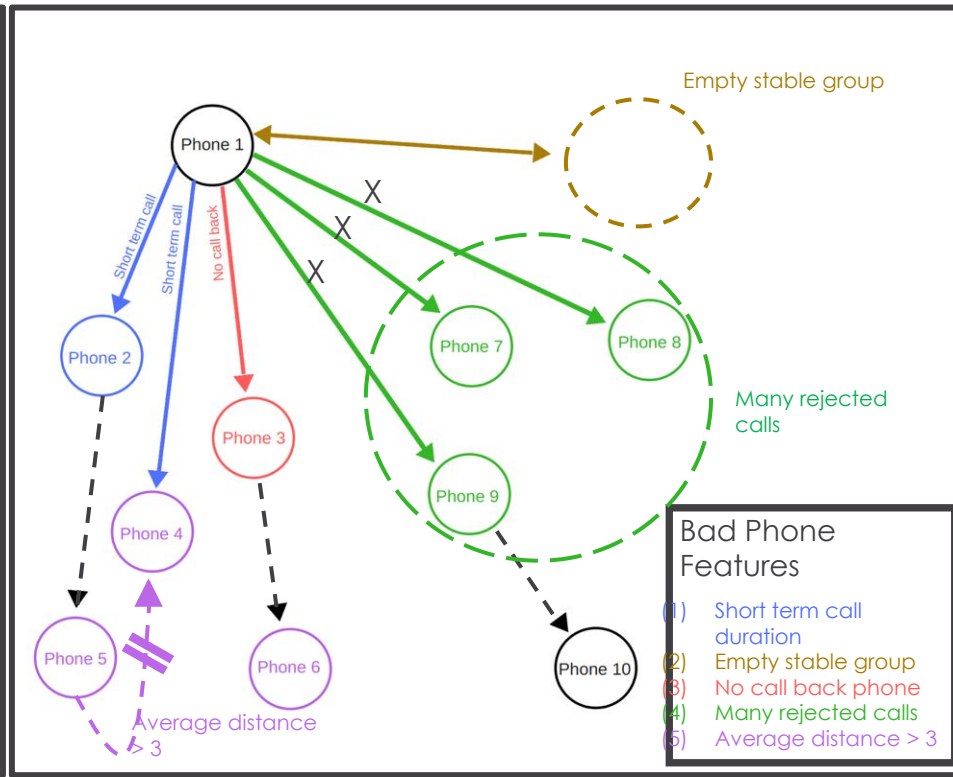
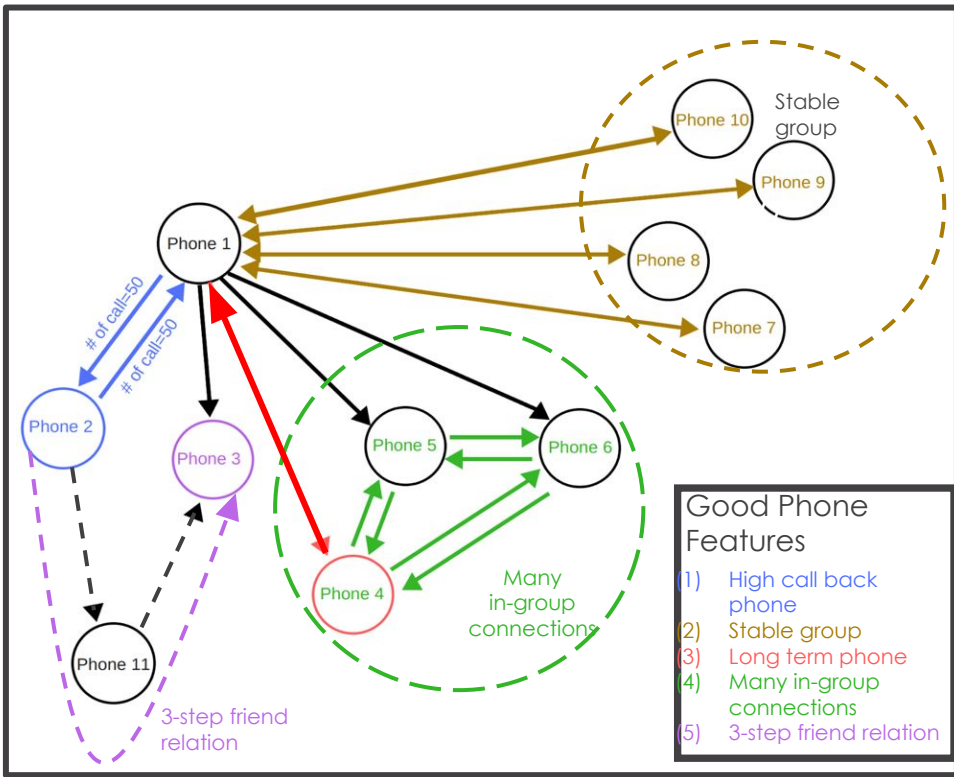
Similarity



Community
Detection



Examples of Graph Features for Machine Learning



Learn - With Graph-Based ML

Data connections make your data smarter

Improve model accuracy by 10 to 50%

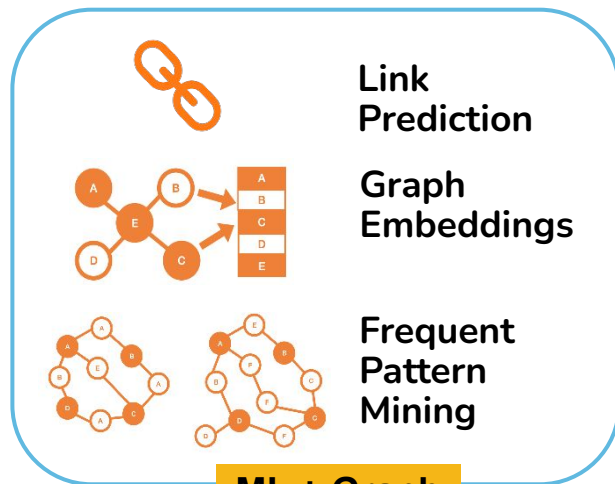
- Detect fraud
- Recommend products/actions
- Recognize/Classify complex entities
- Optimize operations

Innovations:

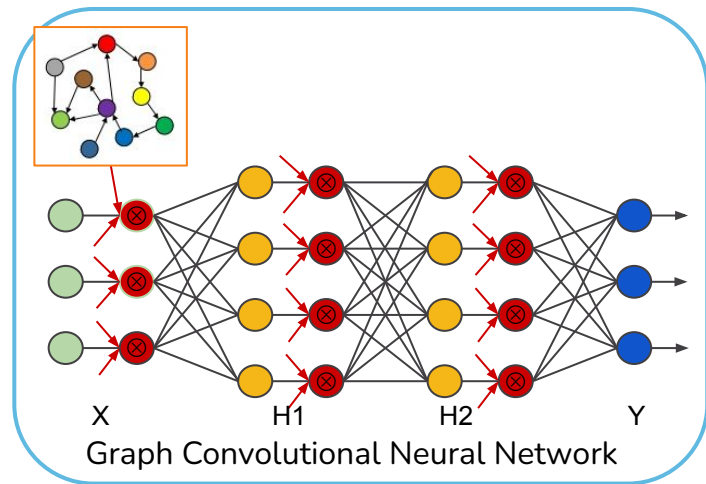
- Graph Embeddings
- Graph Neural Networks

Keys:

- Integration with ML pipeline

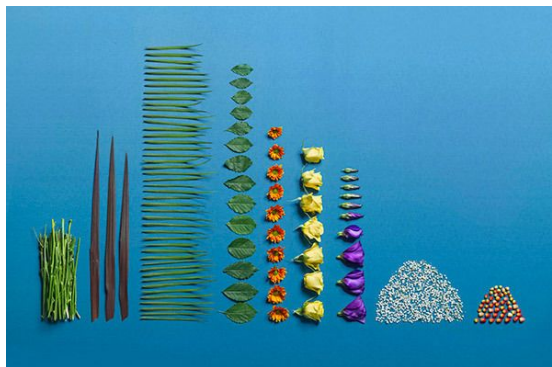


ML + Graph



Connect, Analyze, and Learn.

- Scalable analytics graph database
- Graph algorithms with parallel compute
- Graph-enhanced ML



Flourish.