

The University of Toronto Fifth Annual 2023-2024 IMI *BIGDataAIHUB* Big Data and Artificial Intelligence Competition

\$25,000
IN PRIZE MONEY



Fifth Annual Kick-Off Event

All U of T graduate and undergraduate students with big data/AI experience are welcome to compete



Prof. Kevin E. Yousie

Chair, IMI **BIGDataAIHUB** Big Data & Artificial Intelligence Competition
Associate Professor, Teaching Stream, Institute for Management & Innovation

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Setting the Stage

Today's Agenda

Welcome Comments

- **Prof. Irene Wiecek**, Director, IMI *BIGDataAIHUB*
- **Dan Shonfeld** – Senior Vice President, Compliance & AML Canadian Banking & Wealth Mgt, and Group Chief Anti-Money Laundering Officer, Scotiabank
- **Gail Towne** – Vice President, Global Head of AML/ATF Models & Analytics, Scotiabank

Illegal Wildlife Trade: An Urgent Global Problem

- **Barry MacKillop**, Deputy Director of Intelligence, Financial Transactions and Reports Analysis Centre of Canada (FINTRAC)

Overview, Logistics & Next Steps

- **Prof. Kevin Yousie**, Chair, IMI *BIGDataAIHUB* Case Competition

Technology in This Competition

- **Prof. Gerhard Trippen**, Chief Technology Officer, IMI *BIGDataAIHUB* Case Competition

Overview of the Use Case and Data

- **Duncan Smith-Halverson**, Director, AI Research & Special Projects, Scotiabank
- **Parsa Vafaie**, Data Scientist, Scotiabank

Adjourn (By 1:00 pm)

Norms for this Meeting

Please:

1. Keep your video and audio **muted**.
2. To ask a question or make a comment, put your “**hand up**”.
3. When **called upon**, please unmute both audio and video.
4. Keep your comments relatively **brief and to the point**.
5. After speaking **please mute** your audio and video again.
6. Honour **timelines**.
7. Thank you.

Thank you to the team!



BIGDataAIHUB

Scotiabank.

STEM Fellowship

ICUBE UTM

IMIX
EXECUTIVE PROGRAMS

Recognizing Members of the Team

IMI Faculty & Staff

- Prof. Irene Wiecek – BIGDataAIHUB
- Prof. Kevin Yousie - Chair
- Prof. Gerhard Trippen – Technology
- Prof. Michael Marin – Speakers Series
- Claire Westgate - Marketing
- Ryan Cerrudo - Marketing
- Abdullah Qaisar – Marketing
- Sarah Ogbiti - Marketing
- Jesse Stamplecoski (I&ITS Support)
- Brian Hamilton (I&ITS Support)
- Kenji Le (I&ITS Support)
- Muhammad Atif Rasheed(I&ITS Support)
- Mohammad Tahvili (ICUBE)
- Ignacio Mongrell – ICUBE
- Saima Zulqurnain, IMIx
- Maria Andrade – Administration
- Clerissa Albores - Administration

Scotiabank

- Dan Shonfeld – Senior Vice President
- Gail Towne – Vice President
- Duncan Smith-Halverson, Director
- Parsa Vafaie – Data Scientist
- The Anti Money Laundering Data Science Team

STEM Fellowship

- Sacha Noukhovitch

Competition Values

We Are:

Ethical

Respectful

Collegial

Focused on Personal / Professional Development

Environmentally Friendly

This Year – Final Registration Numbers

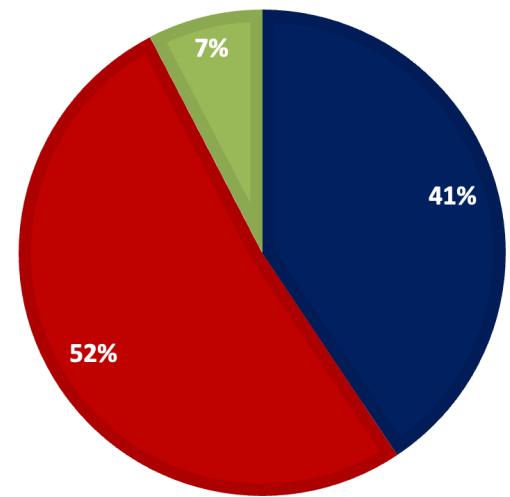
325 Competitors

(Registration was capped at this level.)

Chart Area

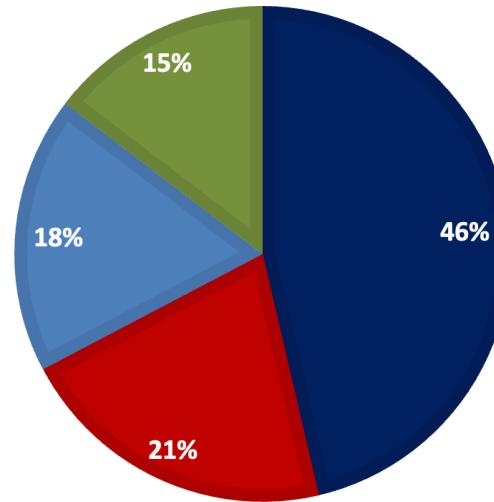
LEVEL OF STUDY

■ Undergraduate ■ Masters ■ PhD



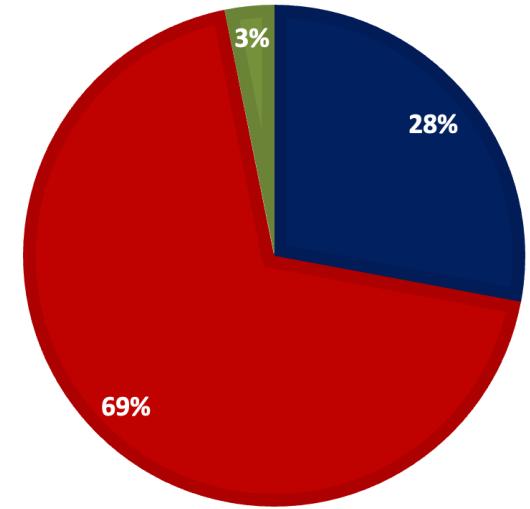
YEAR OF STUDY

■ 1st ■ 2nd ■ 3rd ■ 4th +



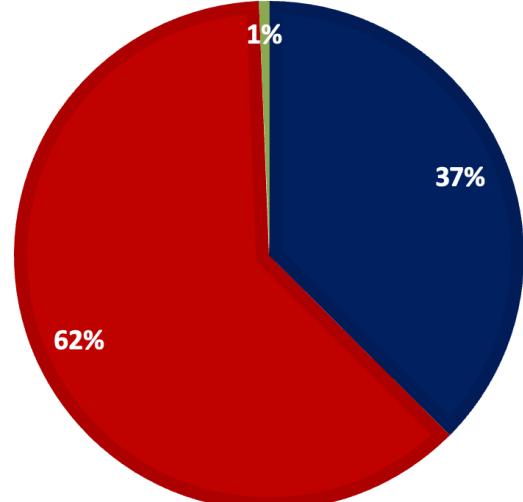
CAMPUS

■ Chart Area ■ St. George ■ UTSC



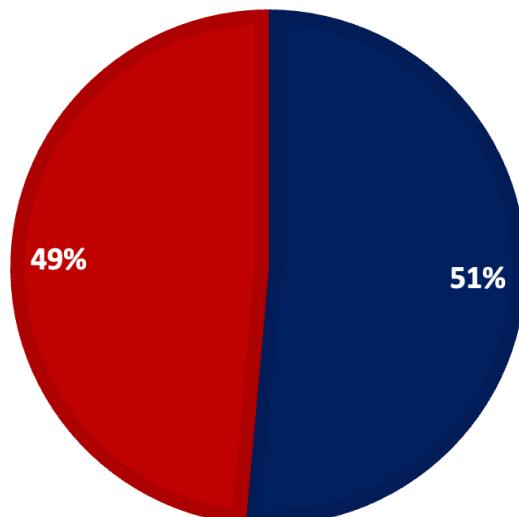
GENDER

■ Female ■ Male ■ Another Gender



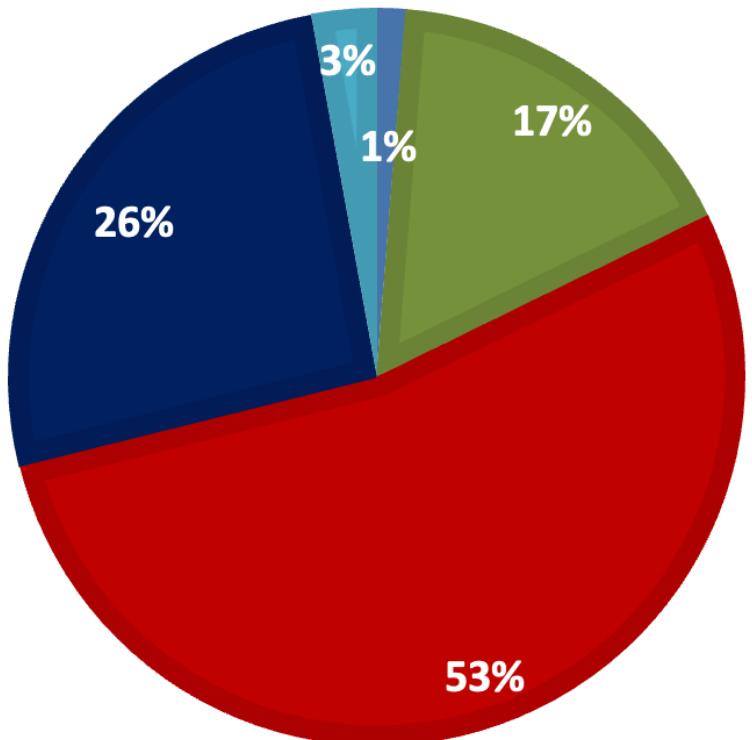
STATUS

■ Domestic ■ International



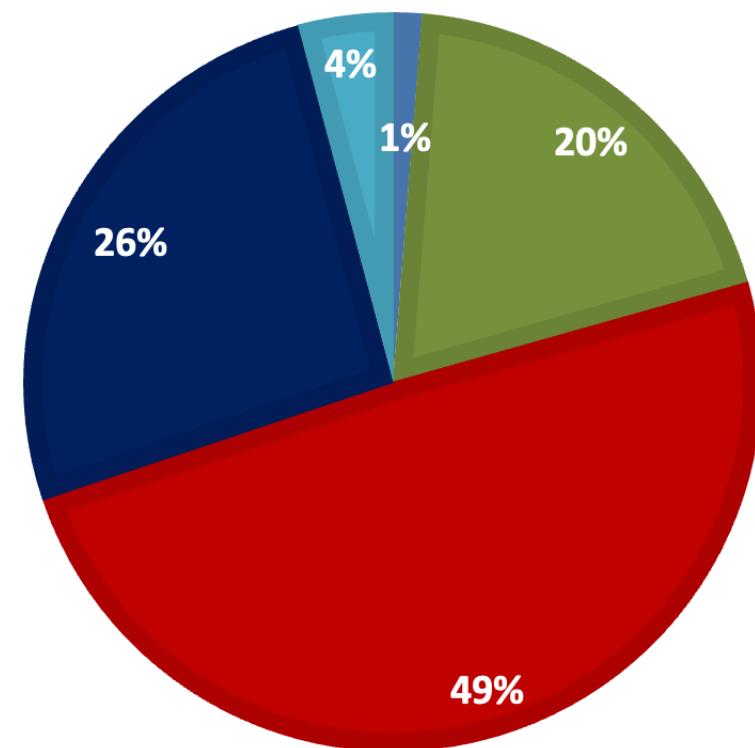
BIG DATA KNOWLEDGE

■ None ■ Low ■ Average ■ High ■ Very High



AI KNOWLEDGE

■ None ■ Low ■ Average ■ High ■ Very High





Prof. Irene Wiecek

Director, IMI *BIGDataAIHUB*
Institute for Management & Innovation





Dan Shonfeld

SVP, Compliance & AML Canadian Banking & Wealth Mgt, and Group Chief Anti-Money Laundering Officer,
Scotiabank

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Gail Towne

Vice President, Global Head of AML/ATF Models & Analytics
Scotiabank



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MISSISSAUGA

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Barry MacKillop

Deputy Director of Intelligence
Financial Transactions and Reports Analysis Centre of Canada (FINTRAC)



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Illegal Wildlife Trade: An Urgent Global Problem

Presentation to *IMI BIGDataAIHUB* Case Competition

November 25, 2023



Canada

The Problem

The illegal wildlife trade has a **devastating effect** on biodiversity



- Risk of losing **more than 1 million species** in the coming decade
 - Elephants, rhinos, pangolins, tigers, turtles, sharks and endangered plants and trees
- At the same time, criminals make **billions** through illegal sales

The Problem

Severe consequences beyond biodiversity



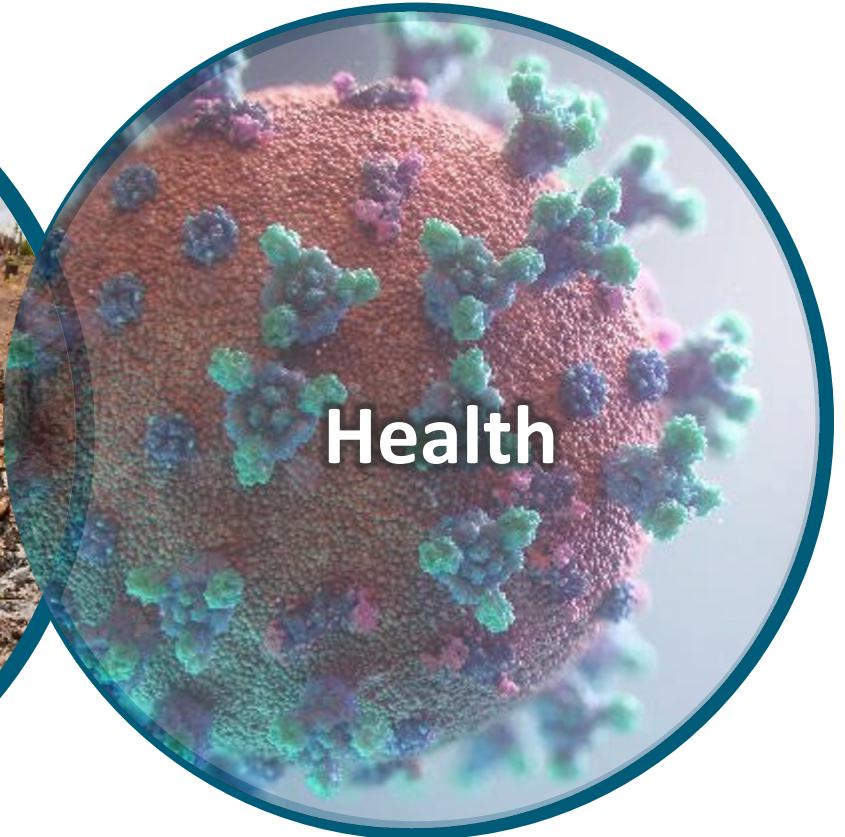
Rule of Law

Wildlife crime weakens the rule of law and is linked to other serious crimes, like drug trafficking and human trafficking.



Climate

Illegal logging and unhealthy oceans accelerate climate change.



Health

Three-quarters of all emerging infectious diseases are zoonotic diseases, like COVID-19.

The Response: Project Anton

Launched in January 2023, **Project Anton** is a public-private partnership initiative led by Scotiabank, and supported by FINTRAC, and other key domestic and international partners to combat illegal wildlife trade.

Results:

- Publication of Operational Alert providing reporting entities with ML indicators for IWT
- Over 50 suspicious transaction reports submitted to FINTRAC
- Over 40 refers of actionable intelligence to Canadian and international law enforcement
- Development of a Project Anton FIU Community of Practice
- Seven nation agreement on a Statement of Principles to combat financial crime related to IWT



Laundering the proceeds
of crime from
ILLEGAL WILDLIFE TRADE

The Inspiration: Anton Mzimba



11 FEBRUARY 1980 – 26 JULY 2022



THANK YOU

Barry MacKillop
Deputy Director-Intelligence
FINTRAC
Barry.MacKillop@fintrac-canafe.gc.ca





Prof. Kevin E. Yousie

Chair, IMI *BIGDataAIHUB* Big Data & Artificial Intelligence Competition
Associate Professor, Teaching Stream, Institute for Management & Innovation

Overview, Logistics & Next Steps

Next Steps & Key Dates

1. Ensure you **accept your Quercus invitations** to both the Competition. You will also receive a **BIGDataAIHUB Seminar Series** invitation.
2. **Form your teams** in Quercus (People then “Official Teams”). Anyone not in a team **in a week** will be placed in one.
3. You will be receiving a very brief Quercus **computing capacity quiz / survey**.
4. **Sources of additional information** are now available in the Modules section of the competition Quercus site (i.e. Wildlife Trafficking, Technical Training).
5. Instructions with respect to **accessing the Data & JupyterHub technology** will follow later.
6. The Data will be released by **Wednesday, December 7th** and those with their own technology can begin to become familiar with it.

Next Steps & Key Dates

7. Direct email address to the Scotiabank Data Science Team.
8. Friday, December 8th from 10:00 – 11:30 am – First Q & A Session.
9. By 5:00 pm Monday, February 26th, 2024 – Initial video and code submission is due.
10. Top five finalist teams will be announced.
11. By 5:00 pm Monday, March 18th, 2023 – Top five teams PowerPoint slides and final code due.
12. Saturday, March 23rd, 2023 – in-person *Finalist PowerPoint Presentations* in front of the judges as well as the *Fighting Crime With Big Data Conference* at the Institute for Management & Innovation, Mississauga in the afternoon.



Prof. Gerhard Trippen

Chief Technology Officer,

IMI **BIGDataAIHUB** Big Data & Artificial Intelligence Competition

Associate Professor, Teaching Stream, Institute for Management & Innovation
and the Rotman School of Management

Technology In This Competition



Duncan Smith-Halverson

Director, AI Research & Special Projects
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Parsa Vafaie

Data Scientist
Scotiabank

Overview of the Use Case and Data

UofT case comp 2023-24

Nov, 7, 2023

Duncan Smith-Halverson
Parsa Vafaie



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What's a Data Scientist?

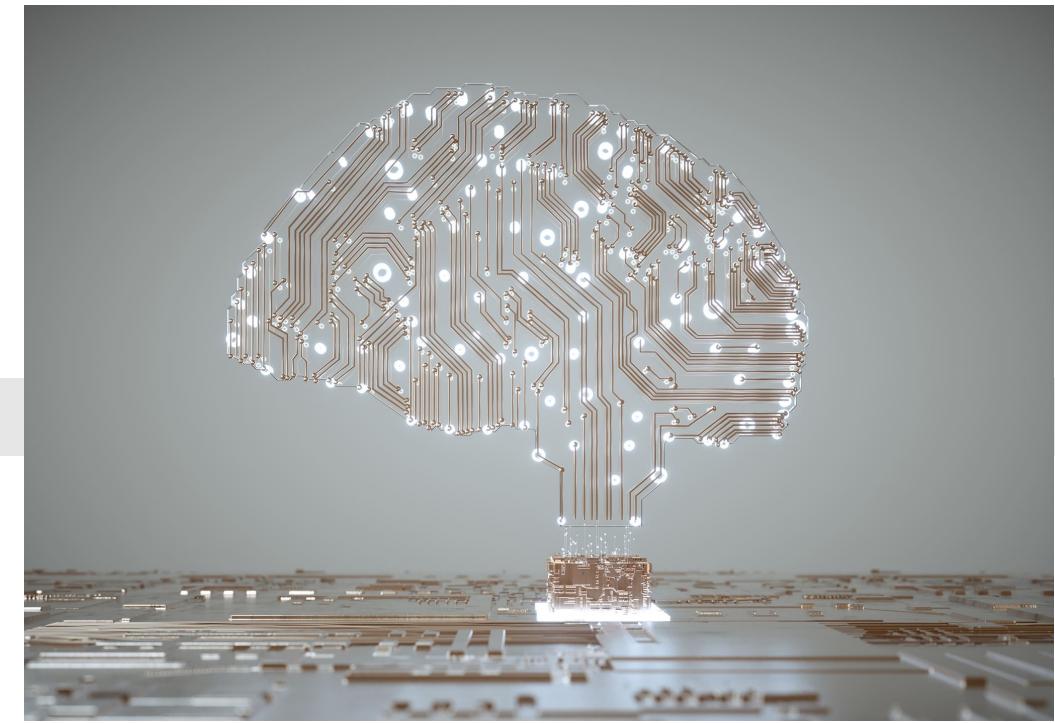
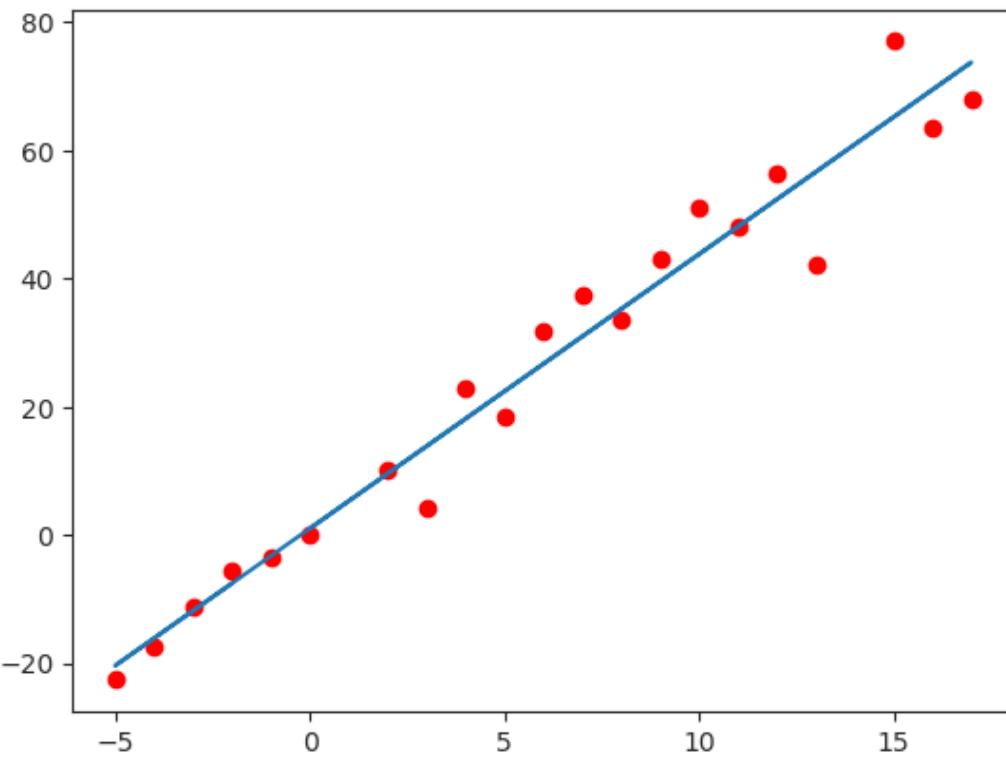
Data
Science



```
In [1]: import pandas as pd  
import numpy as np  
from matplotlib import pyplot as plt  
import seaborn as sns
```



A Brief History of Statistical Modelling



The Modern Data Scientist

Expert User of Algorithms

Not necessarily developing algorithms, but capable of explaining.

Understands the diversity of tools, and able to select the appropriate tool for the task.

Capable of Wrangling Data

Data is messy... if devoid of mess, also devoid of information.

Communication and Presentation

Capable of telling a story with data, through visualizations and through summarization.



This Year's Use Case

Many Canadian species in danger.

Approximately USD
20 billion in criminal
proceeds each year

ILLEGAL WILDLIFE TRADE



Overview of tasks



Task 1 (Supervised learning)

Building **supervised learning models** for predicting high risk customers.



Task 2 (Finding IWT networks)

Finding wild-life trafficking patterns from the provided data.



Task 3 (Entity extraction and resolution)

Crawling news webpages for finding known wild-life traffickers and matching with provided customers.

Overview of data



Transactions: Cash, Wire, EMT



Customer: Name, Age,
Tenure, Occupation



External: News webpages,
government websites, etc.

Learning opportunities



Task 1 (Supervised learning)

- Learn to work with multiple data sources.
- Feature engineering.
- Working with customer networks.



Task 2 (Finding IWT networks)

- Work on a real-world complicated business problem.
- Building methods to detect IWT networks.
- Learn/improve data and graph analysis skills.
- Text analysis on transaction messages



Task 3 (Entity extraction and resolution)

- How to efficiently crawl webpages.
- How to efficiently match names with data (~300k customers)
- Find reported bad actors in customer networks.
- Find suspicious counterparties for reported bad actors.



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Closing Comments

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