

AI in Social Humanities

The Society 5.0 Phenomenon



Andry Alamsyah

FGD AI dalam Perspective Social - Humaniora
LPPM Telkom University, 24 September 2021



Introduction



Andry Alamsyah

- **Researcher / Data Scientist**
- Chief and Founder of **Lab. Social Computing & Big Data**
- Assistant Professor, Faculty Member, **School of Economic and Business, Telkom University**
- Chairman & Founder **Indonesian Data Scientist Society (AIDI)**
- Honorary Member of **Asosiasi Blockchain Indonesia (ABI)**

Research Field :

Social Computing, Social Network, Complex Network / Network Science, Computational Social Science, Data Analytics, Big Data, Data Mining, Graph Theory, Blockchain Technology, Disruptive Innovation / Disruptive Economy, ICT Entrepreneurial Business, Data / Information Business

Education :

S1 : *Mathematics - ITB*, Topic: Statistics

S2 : *Informatics - Universite Picardie*, France, Topic: Information System,

S3 : *Electro and Informatics - ITB*, Topic: Social Network, and Big Data

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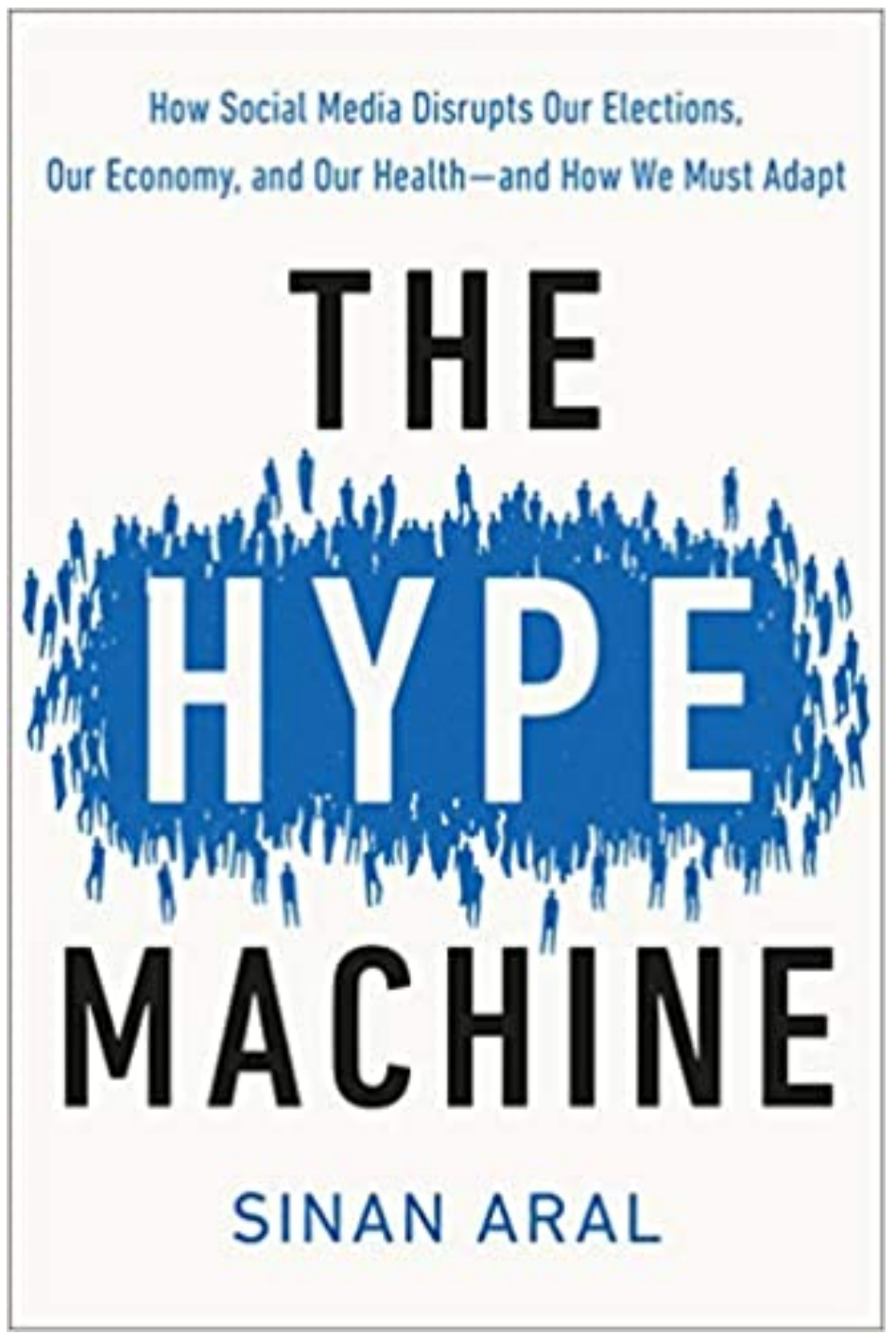
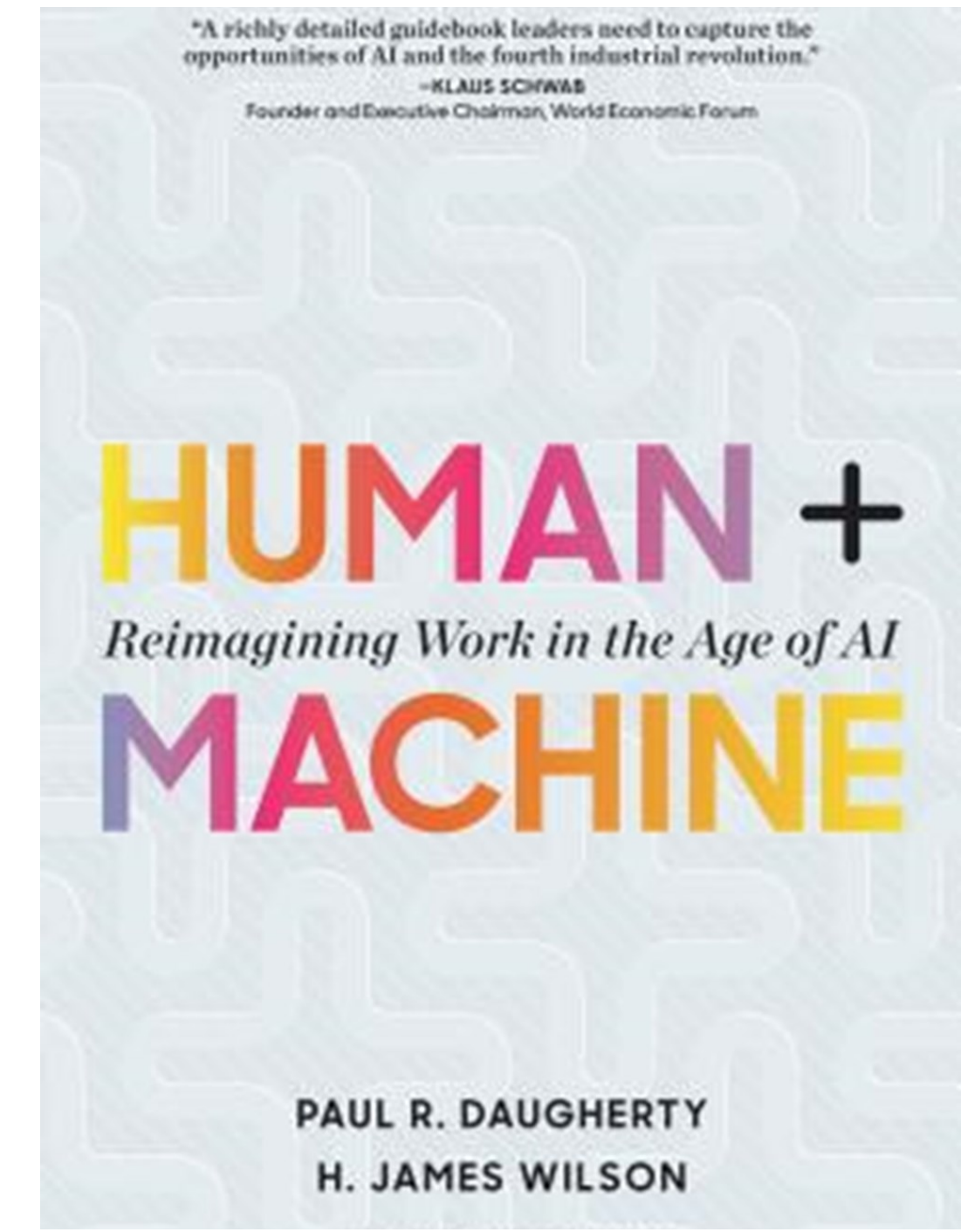
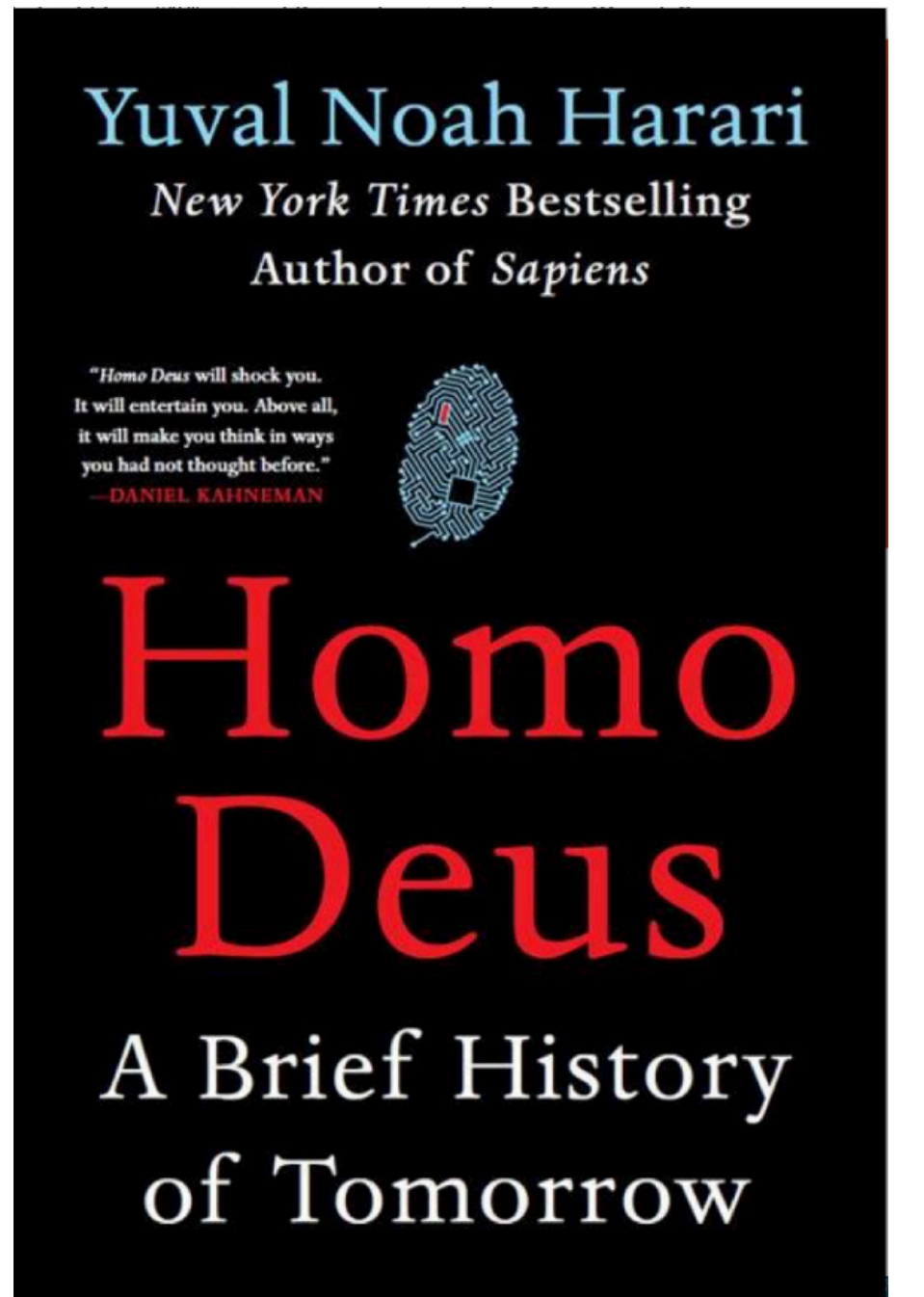
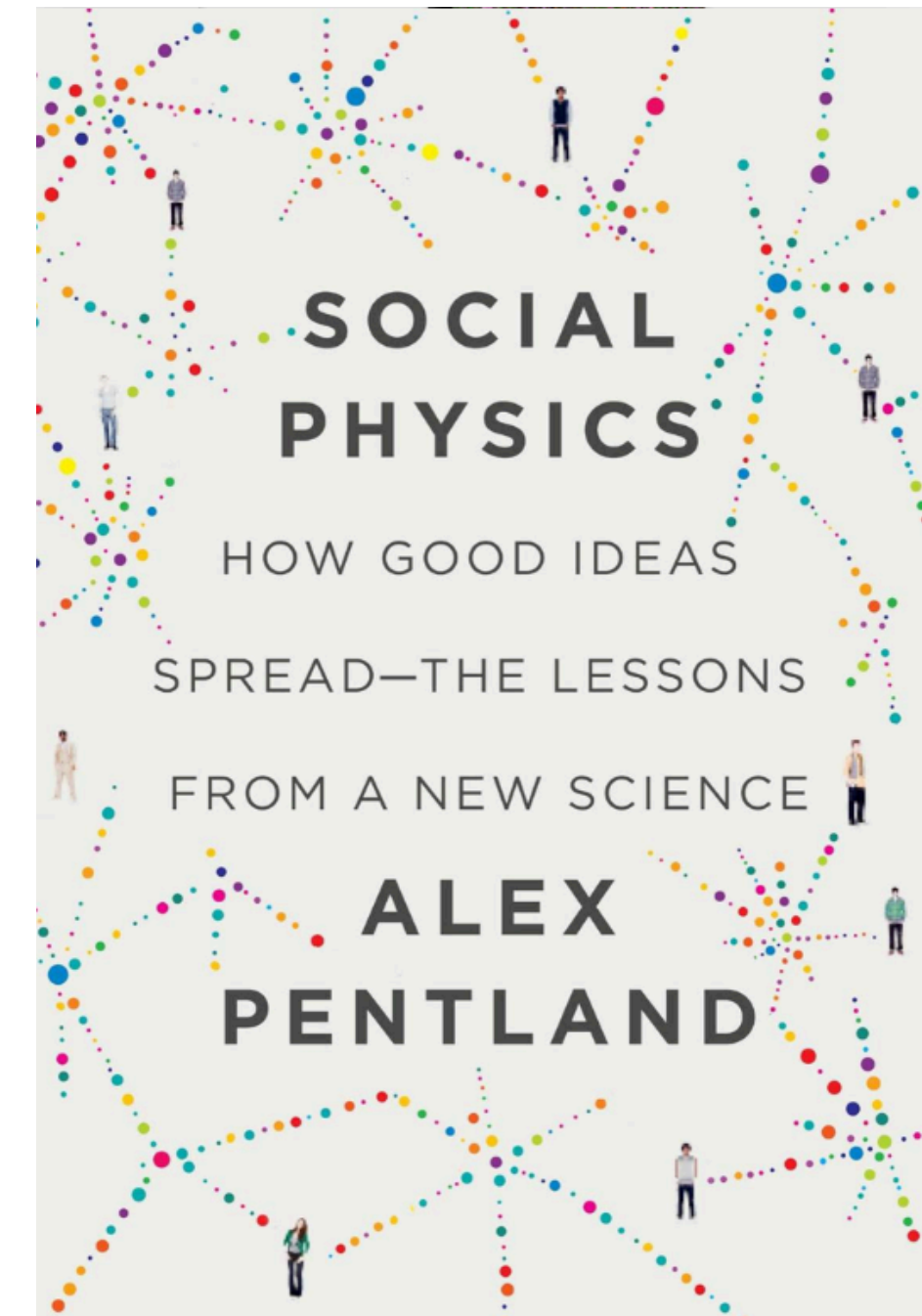
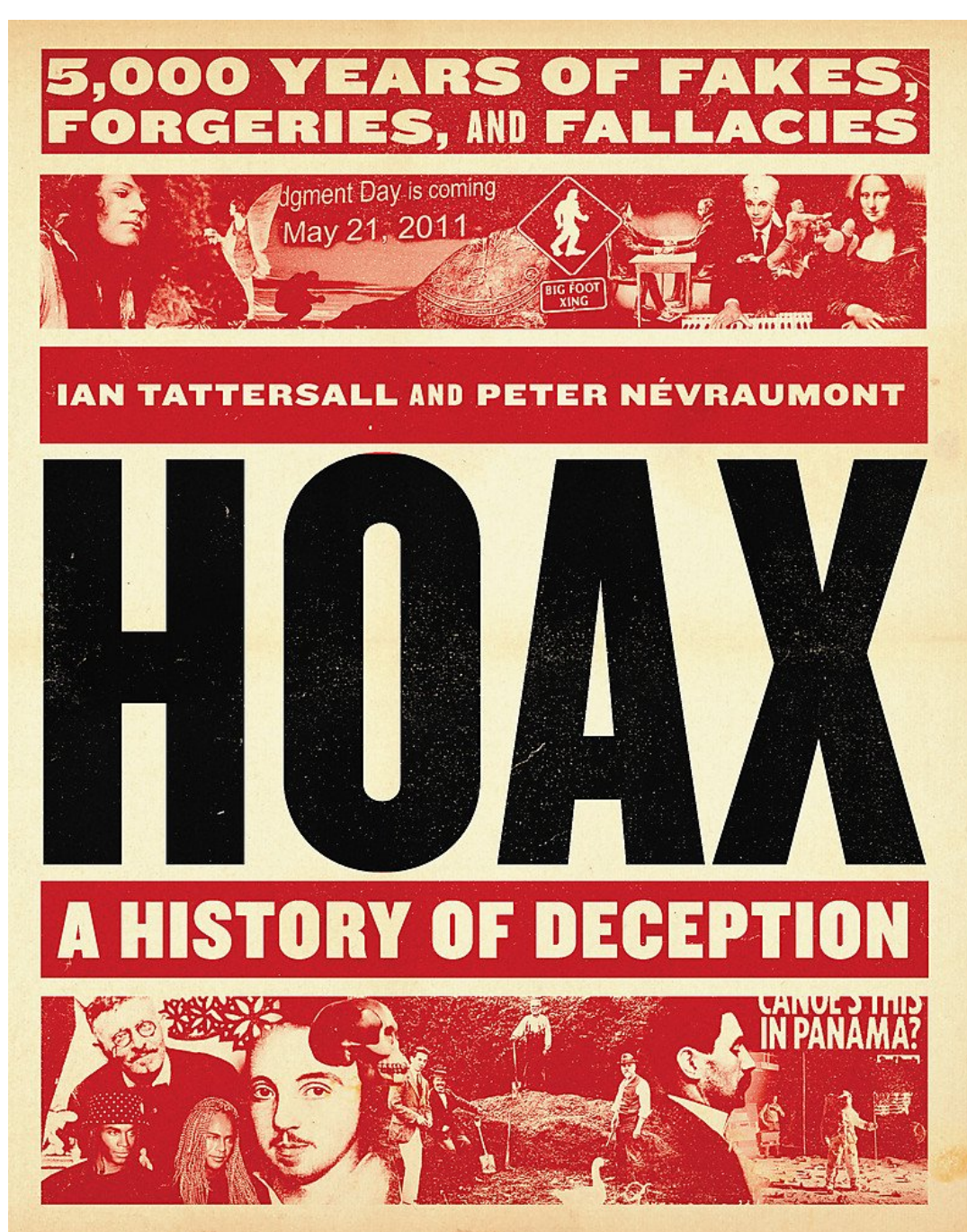
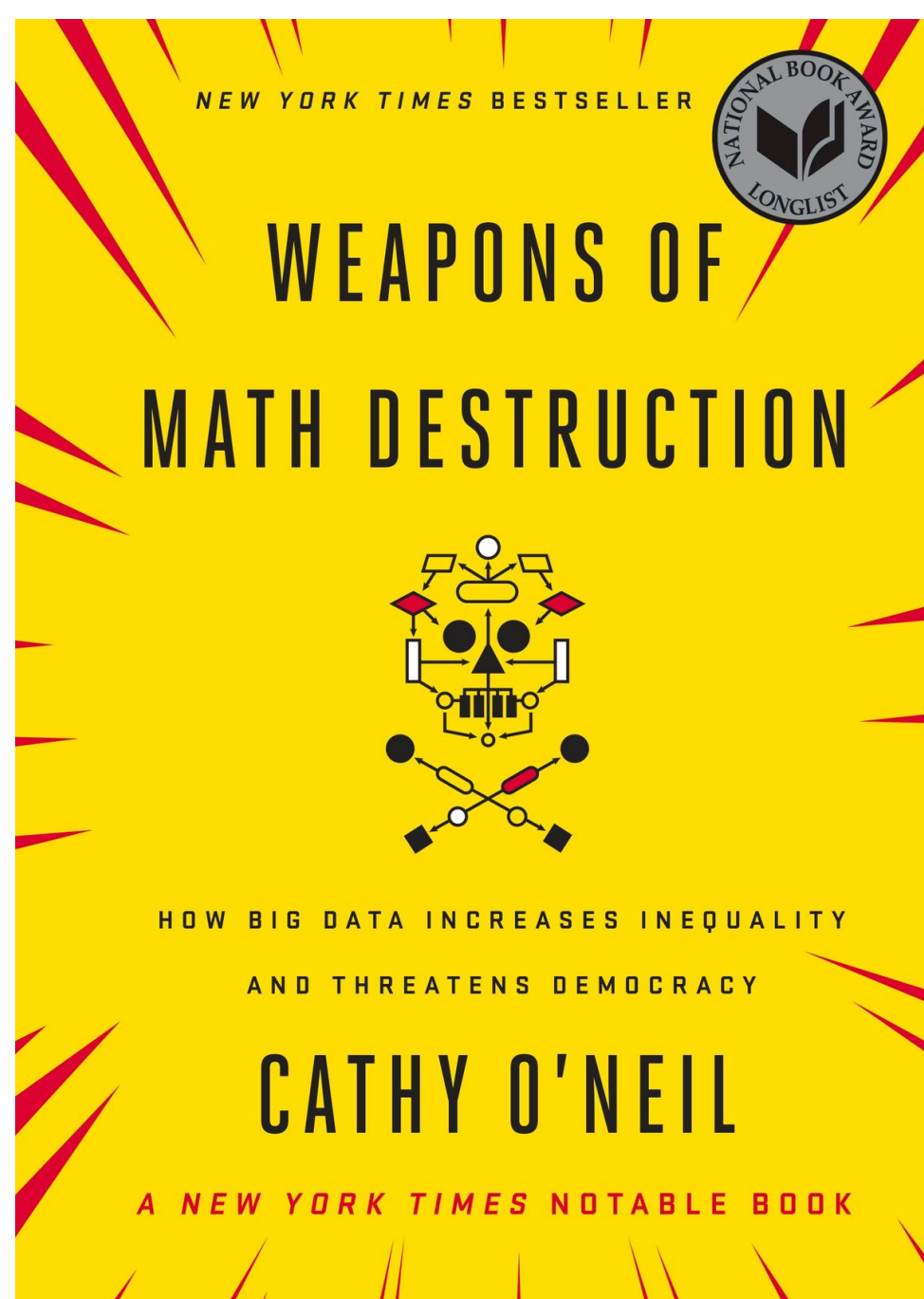
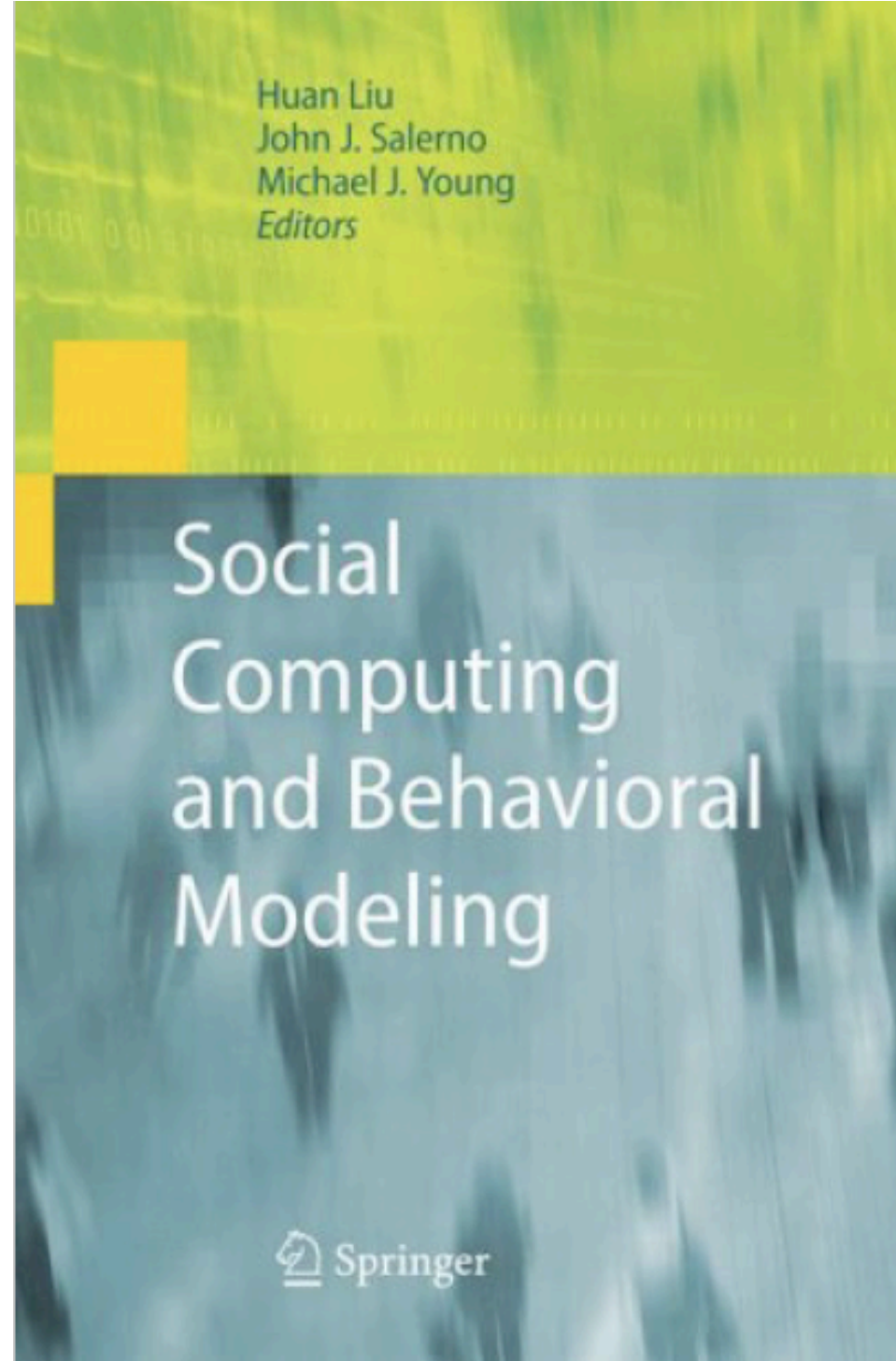
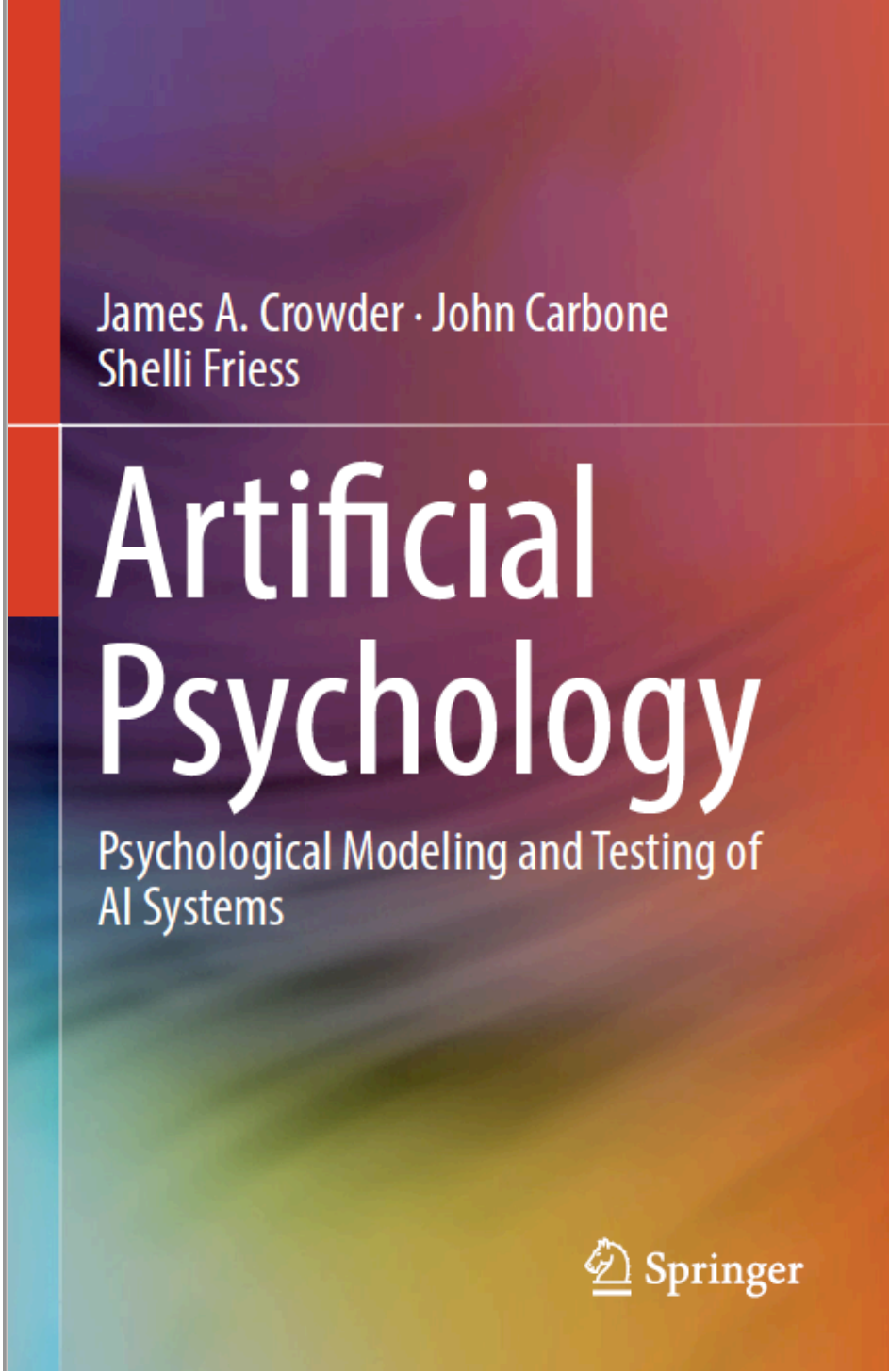
repository arxiv.org/a/0000-0001-5106-7561

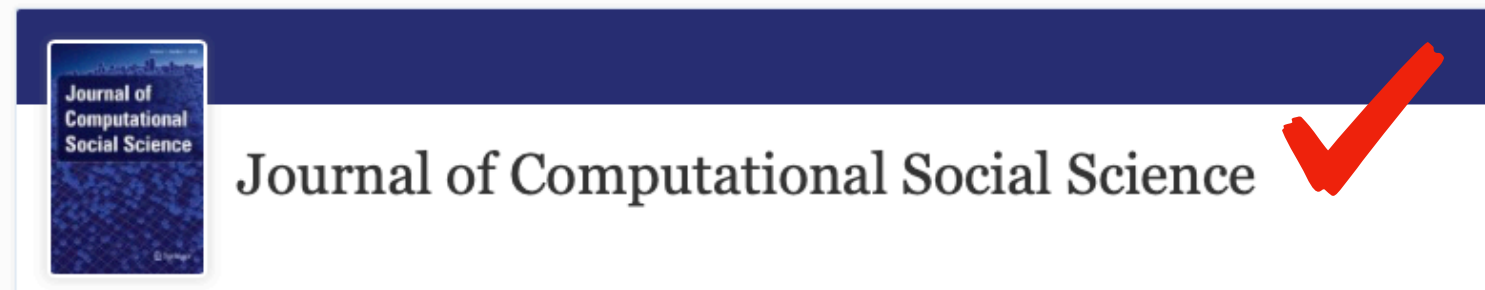
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twitter twitter.com/andrybrew



The Humanities and Social Sciences are the study of human behaviour and interaction in social, cultural, environmental, economic and political contexts. It has a historical and contemporary focus, from personal to global contexts, and consider challenges for the future.





Journal of Computational Social Science



[Editorial board](#) [Aims & scope](#) [Journal updates](#)

First issue published in January 2018.

The *Journal of Computational Social Science* (JCSS) is an interdisciplinary peer-reviewed journal that ties together groundbreaking research across the strata of the social sciences (sociology, economics, political science, psychology, linguistics, and other disciplines), physics, biology, management science, computer science, and data science. In addition to topics conventionally associated with computational social science, the journal invites contributions that analyze social/ economic phenomena or structures using computational approaches related to, but not restricted to, the following methods or fields: — [show all](#)

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nature > special

SPECIAL | 07 JULY 2021

Computational social science



The availability of big data has greatly expanded opportunities to study society and human behaviour through the prism of computational analyses. The resulting field is known as computational social science and is defined by its interdisciplinary approaches. However, ... [show more](#)



[Special home](#) [Panel at Networks 2021](#)

Magazine content

EDITORIAL
1 JUL 2021
Nature

The powers and perils of using digital data to understand human behaviour

Computational social science is a powerful research tool. But it needs its different disciplines to find a common language.



COMMENT
1 JUL 2021

Everyone should decide how their digital data are used



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RESEARCH ARTICLE

The influence of algorithms on political and dating decisions

Ujué Agudo, Helena Matute

Published: April 21, 2021 • <https://doi.org/10.1371/journal.pone.0249454>



Article	Authors	Metrics	Comments	Media Coverage
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Abstract

Introduction

Ethics statement

Experiment 1: Political context, explicit persuasion

Experiment 2: Political context, covert persuasion

Experiment 3: Dating context, explicit and

Abstract

Artificial intelligence algorithms are ubiquitous in daily life, and this is motivating the development of some institutional initiatives to ensure trustworthiness in Artificial Intelligence (AI). However, there is not enough research on how these algorithms can influence people's decisions and attitudes. The present research examines whether algorithms can persuade people, explicitly or covertly, on whom to vote and date, or whether, by contrast, people would reject their influence in an attempt to confirm their personal freedom and independence. In four experiments, we found that persuasion was possible and that different styles of persuasion (e.g., explicit, covert) were more effective depending on the decision context (e.g., political and dating). We conclude that it is important to educate people against trusting and following the advice of algorithms blindly. A discussion on who owns and can use the data that makes these algorithms work efficiently is also necessary.

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Political Insight

Artificial Intelligence and Democratic Politics

Birgit Schippers

First Published February 24, 2020 | Other

[Check for updates](#)

<https://doi.org/10.1177/2041905820911746>



Altmetric 4



From digital campaigning to social media, the internet has transformed politics. But the rise of artificial intelligence poses even more profound challenges for democratic processes. Can

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Big Data in Political Science



Big Data in Political Science

Introduction to Virtual Issue 5, 2013

Article

[The Five Vs of Big Data Political Science Introduction to the Virtual Issue on Big Data in Political Science Political Analysis](#)

Burt L. Monroe

Political Analysis, Volume 21, Issue V5

Articles

frontiers in Blockchain | Blockchain for Good

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THIS ARTICLE IS PART OF THE RESEARCH TOPIC
Inclusive Stakeholding: Reimagining Incentives
[View all 4 Articles >](#)

HYPOTHESIS AND THEORY article

Front. Blockchain, 25 March 2020 | <https://doi.org/10.3389/fbloc.2020.00012>

Decentralized Network Governance: Blockchain Technology and the Future of Regulation



[Andrej Zwitter](#)^{1*} and [Jilles Hazenberg](#)²

¹Data Research Centre, Faculty Campus Fryslân, University of Groningen, Groningen, Netherlands

²Independent Researcher, Groningen, Netherlands

AI in The News

ORIGINALLY PUBLISHED JULY-AUGUST 2019

Building the AI-Powered Organization

Technology isn't the biggest challenge. Culture is.

→ by TIM FOUNTAINE, BRIAN McCARTHY, and TAMIM SALEH

ARTIFICIAL INTELLIGENCE IS reshaping business—though not at the blistering pace many assume. True, AI is now guiding decisions on everything from crop harvests to bank loans, and

How Artificial Intelligence is the future of Digital Marketing

StefanBStreet 13 hours ago · 7 min read



AI in digital marketing is not a new idea. It has been around for many years, and there are many types of applications. The only thing that's changed is the rate at which it has been adopted by businesses and marketers alike. This implementation of digital marketing has helped organizations save time, money, and workforce.

Will AI Take Our Jobs & Should We Be Afraid?

The peak of job-stealing AI anxiety seems to have mellowed, but what's really happening out there and what does it mean for the future of work?

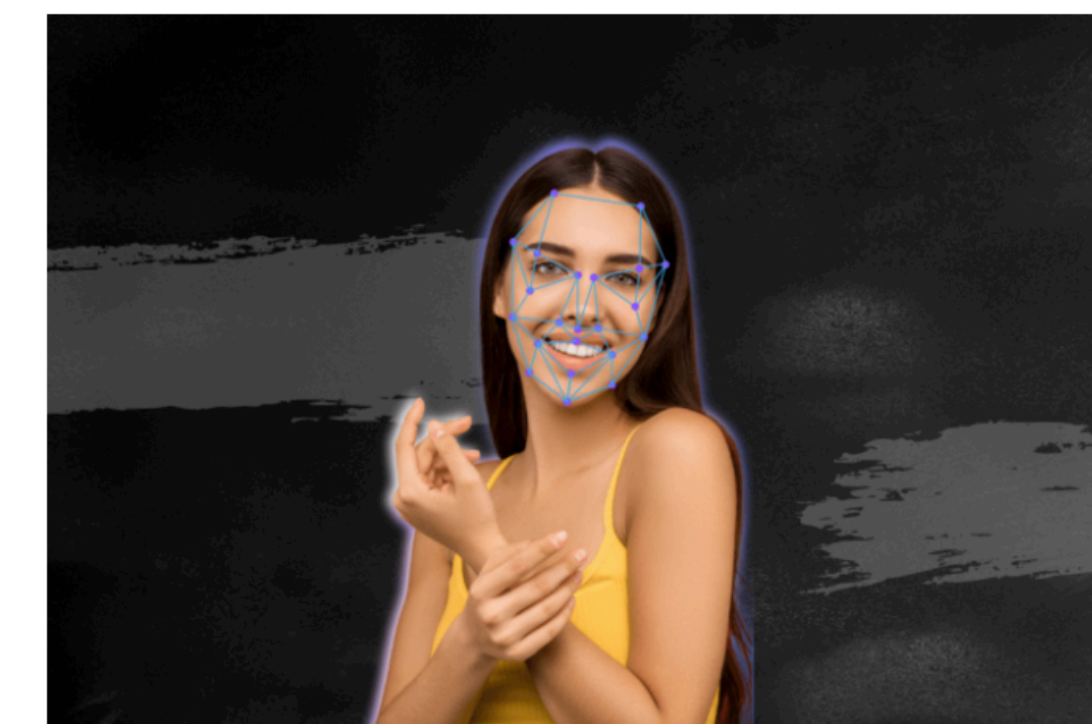
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Deepfake Porn: When Tech Ruins Women's Lives

Deepfake is a terrifying sexual harassment weapon

Nabil Alouani 2 days ago · 6 min read



Original photo: Sound On/Pexels

You're probably familiar with apps like [Photo Lab](#). You hop in, upload a selfie, then wait a few seconds only to find yourself marveling at what

How AI and Digital Lab Tools are Joining the Fight Against COVID-19

BCGDV portfolio company LabTwin is helping researchers fight the COVID-19 pandemic. Here's how.

BCG Digital Ventures Follow Apr 16, 2020 · 4 min read



By [Guru Singh](#), Head of Growth, LabTwin

In the past 3 months, COVID-19 has become a worldwide health crisis. Thousands of people are dying every day and billions of people are in lockdown. There are no approved drugs or vaccines to fight this new disease, which is part of the reason it has spread so quickly.

The life science industry has spurred into action against the COVID-19 pandemic. Public-private partnerships and international collaborations have sprung up around the world. Researchers are increasingly using AI

MIT News

ON CAMPUS AND AROUND THE WORLD

Study: As a population gets older, automation accelerates

Economists find companies' adoption of robots is partly due to shortage middle-aged labor.

Peter Dizikes | MIT News Office
September 15, 2021



MIT News

ON CAMPUS AND AROUND THE WORLD

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Toward a smarter electronic health record

An AI-enhanced system enables doctors to spend less time searching for clinical information and more time treating patients.

Adam Zewe | MIT News Office
September 23, 2021



INDEPENDENT

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Culture > Music > News

Kurt Cobain and Amy Winehouse subject of 'new music' created by AI software

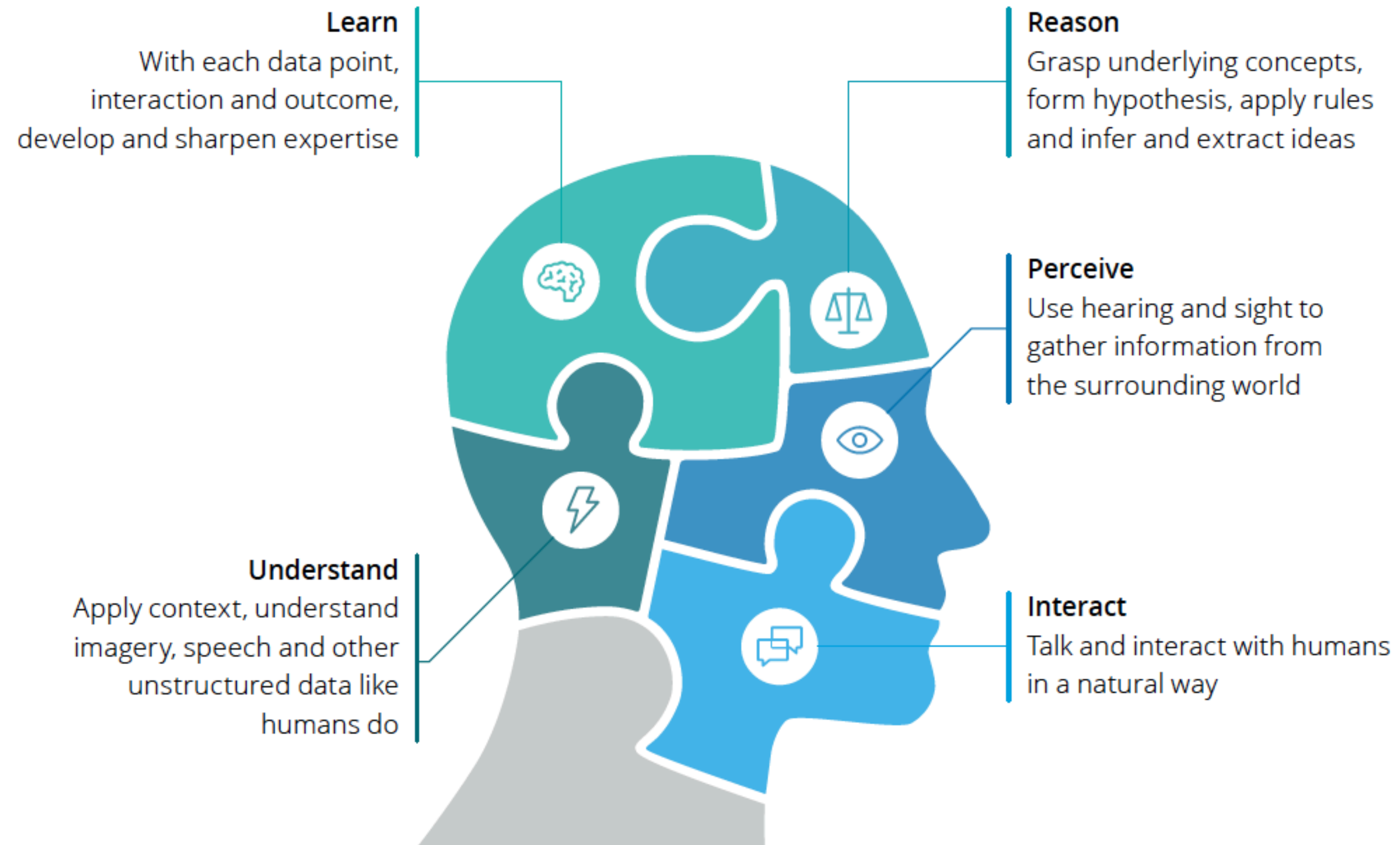
The compilation is titled *Drowned in the Sun – Lost Tapes Of The 27 Club*

Rachel Brodsky Los Angeles | Tuesday 06 April 2021 07:57 | comments



Remembering Kurt Cobain, 20 years after his death

Artificial Intelligence



Decade 2010s

Decade 2030s

Big Data, Data Analytics, Machine Learning

Artificial General Intelligence (Human Level Intelligence)

Decade 2020s

Decade 2040s

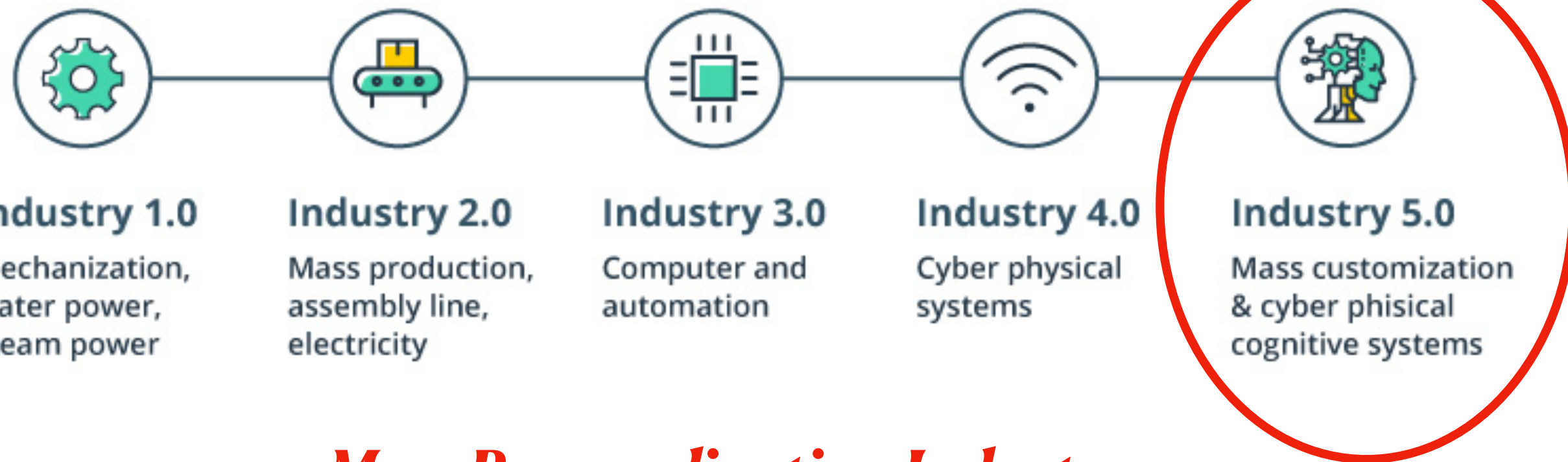
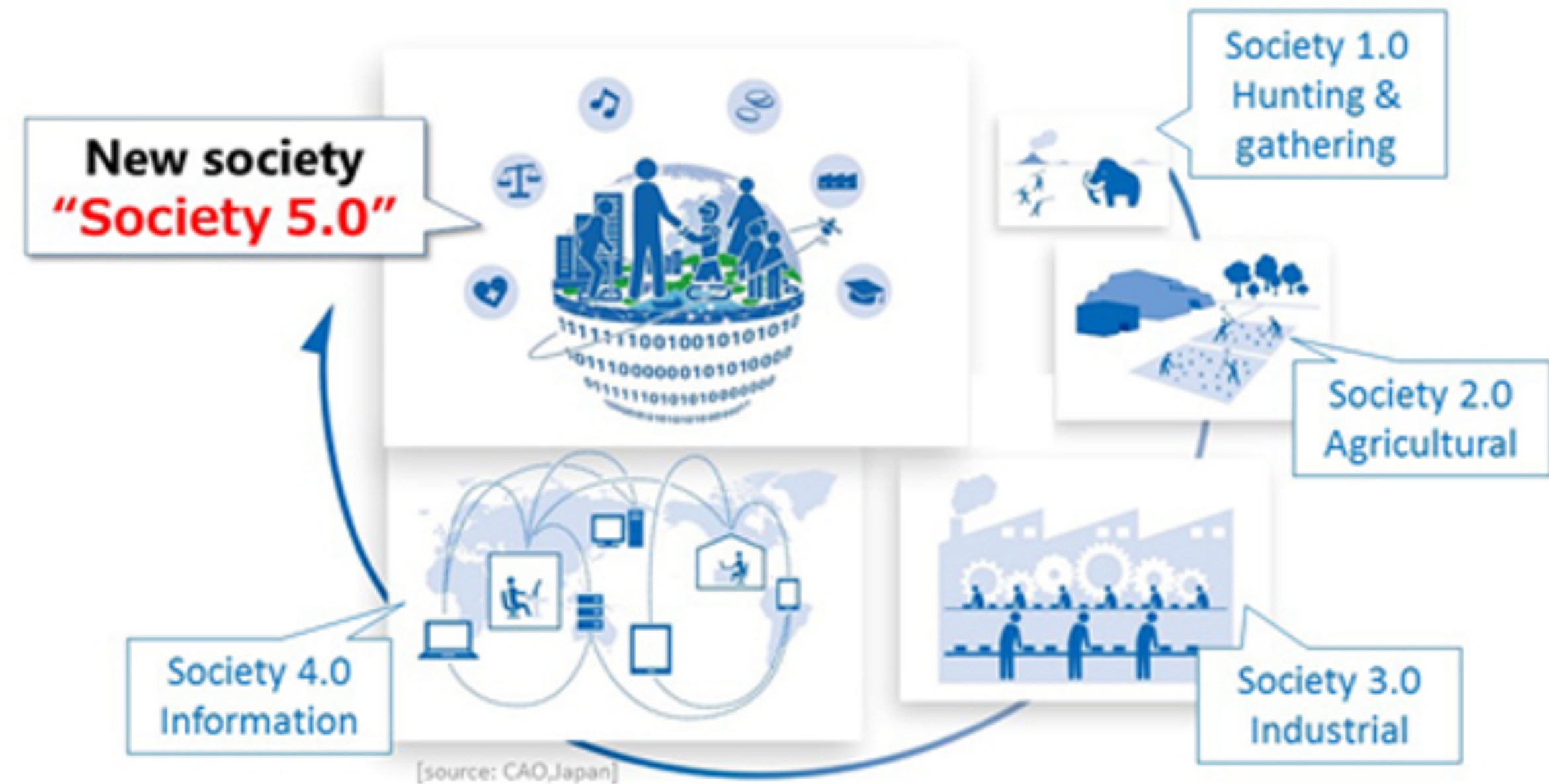
Artificial Narrow Intelligence (Domain Base)

Artificial Super Intelligence (Better than Human)

Technology-Driven Society

Industry 5.0

Society 5.0



Industry 1.0
Mechanization, water power, steam power

Industry 2.0
Mass production, assembly line, electricity

Industry 3.0
Computer and automation

Industry 4.0
Cyber physical systems

Industry 5.0
Mass customization & cyber physical cognitive systems

Mass Personalization Industry

using data & analytics capabilities to understand & predict the market needs

Human-Centred Society

with the help of state-of-the-art technology that integrates cyber and physical space to resolve various modern social challenge

BIG DATA, ARTIFICIAL INTELLIGENCE, BLOCKCHAIN



Society 5.0

Human-Centered Society

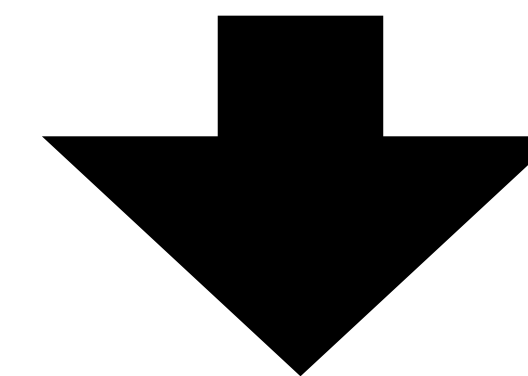
with the help of state-of-the-art technology that integrates cyber and physical space to resolve various modern social challenge

Problem

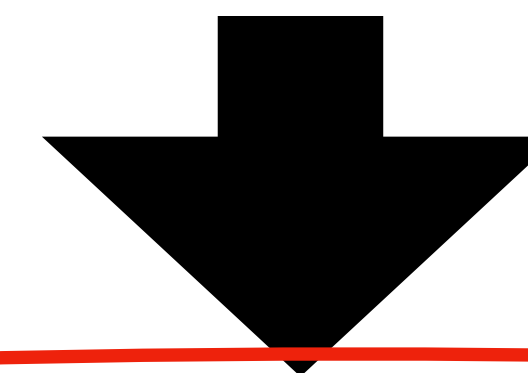
reduce poverty, job opportunity, education for all, entrepreneurship opportunity, precision healthcare, etc

Domain

business, politics, government, health, employment, social welfare, security, defense, agriculture/fishery, etc

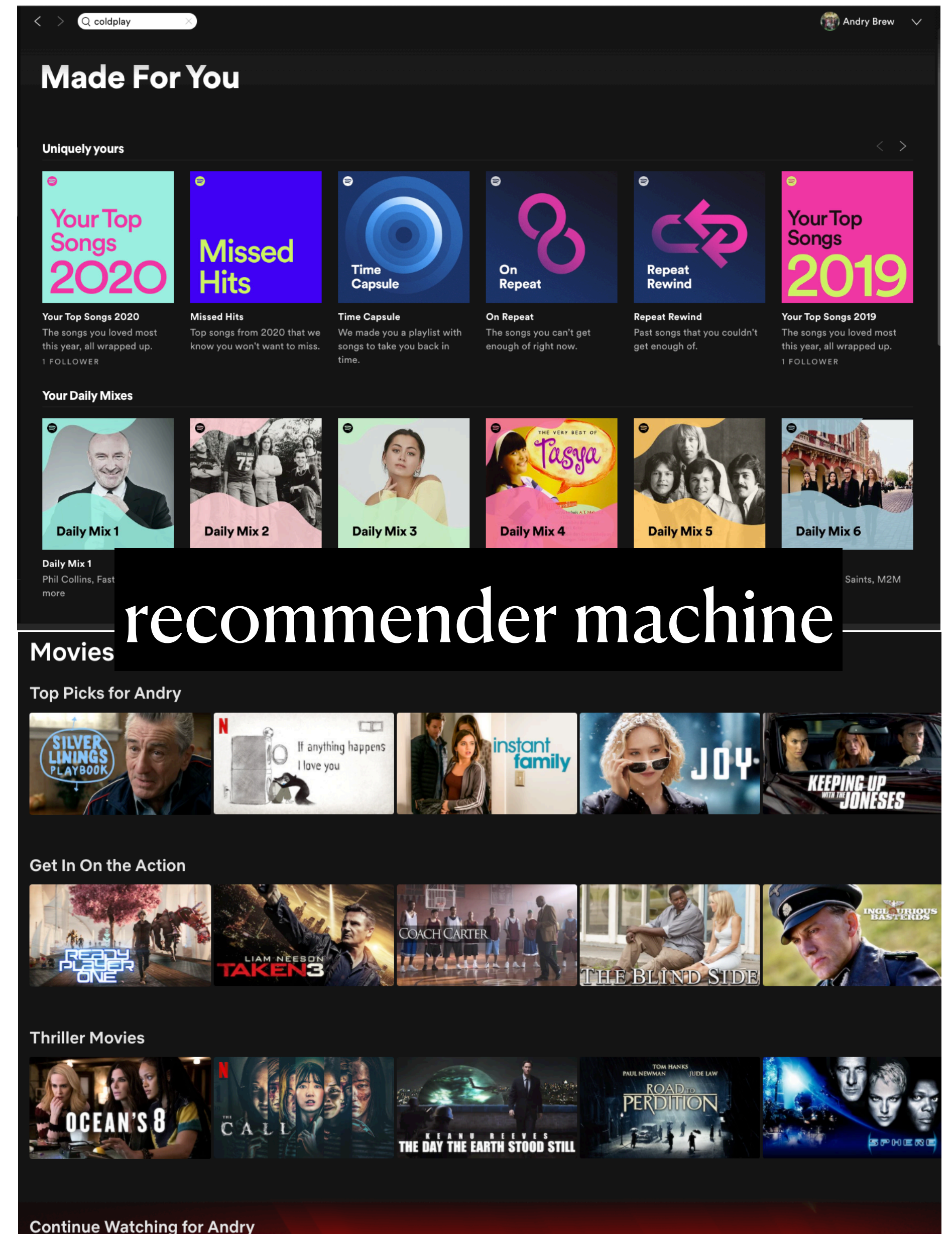
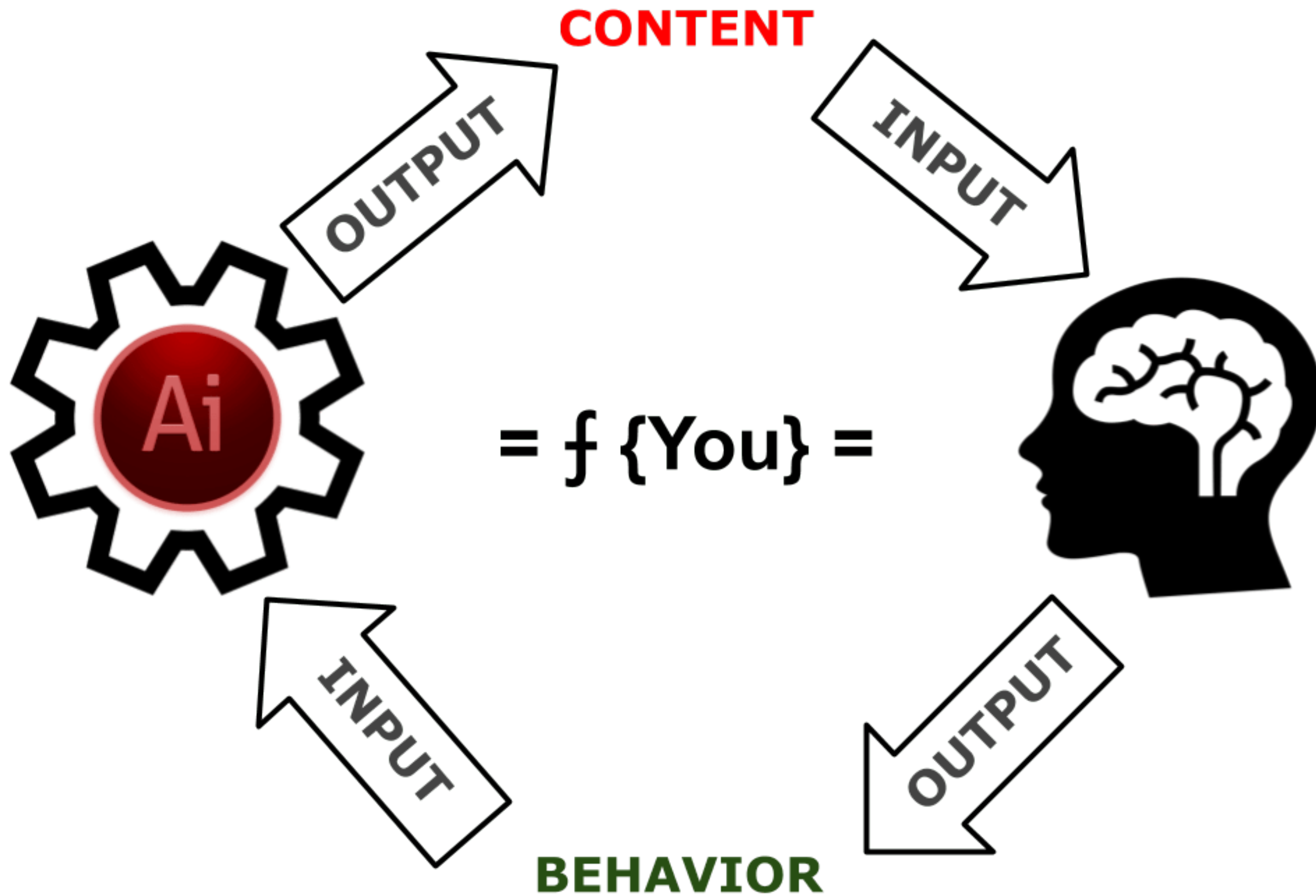


Big Data, **Artificial Intelligence**, Blockchain

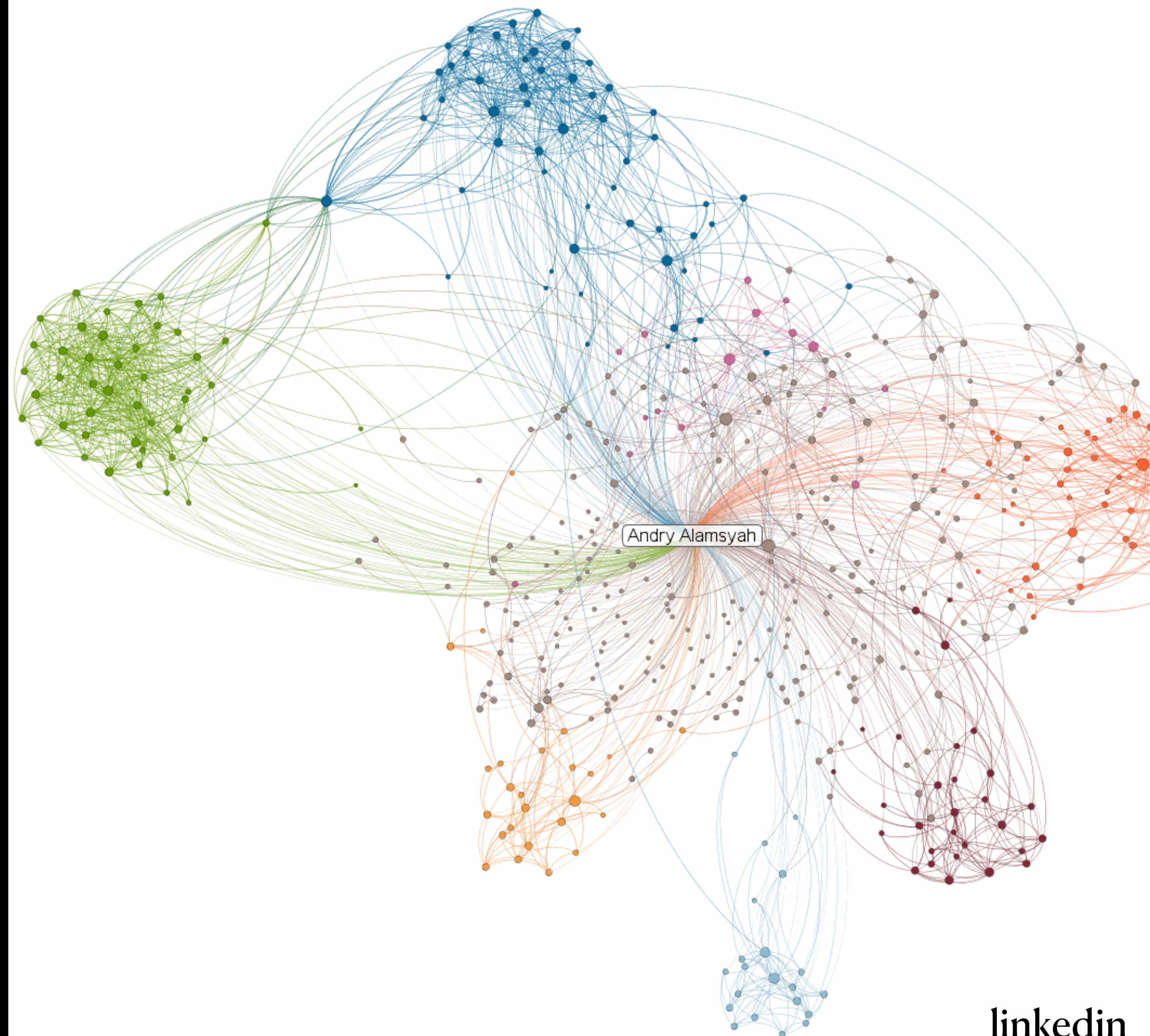
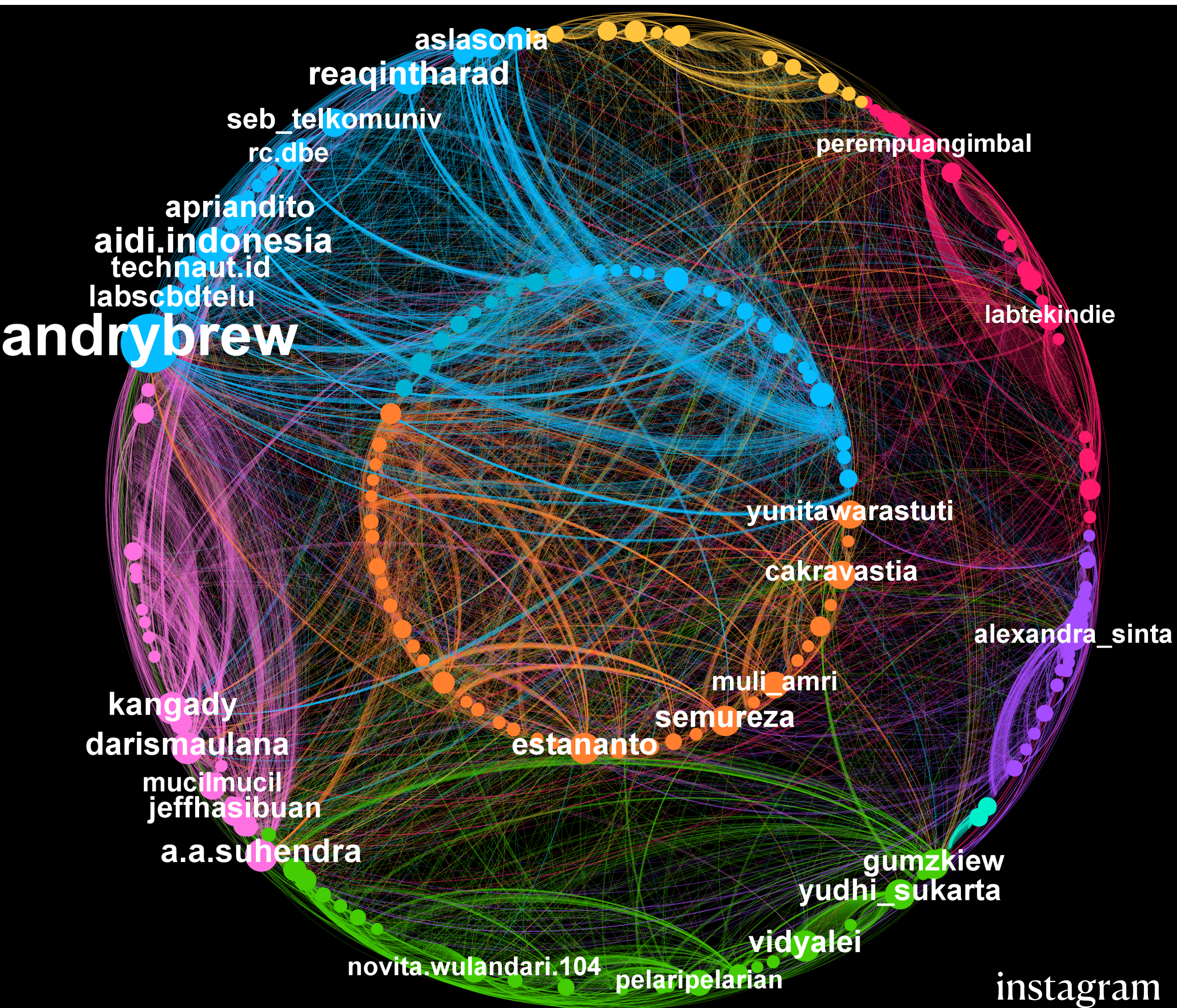


Data Analytics, Data Science, Machine Learning, Internet of Things, etc

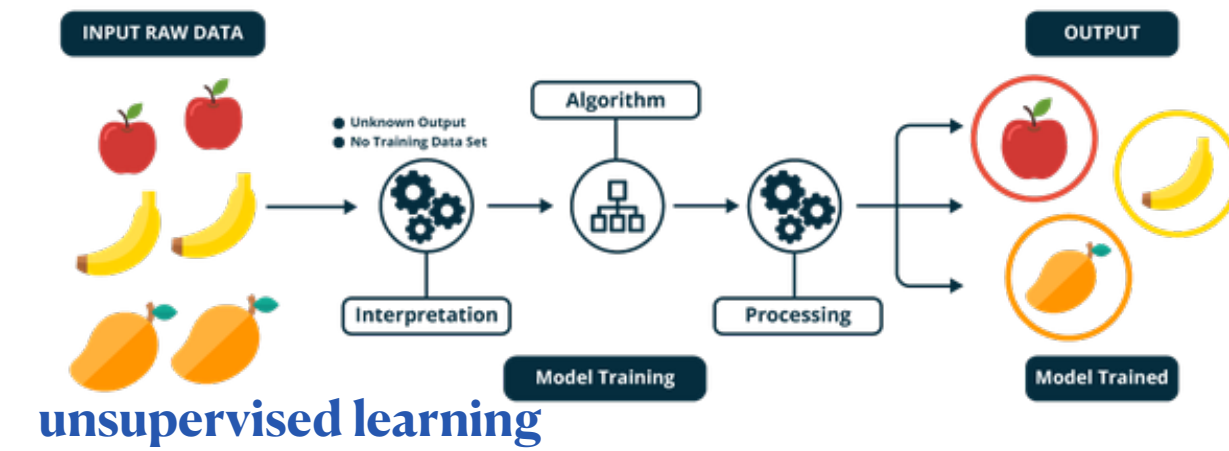
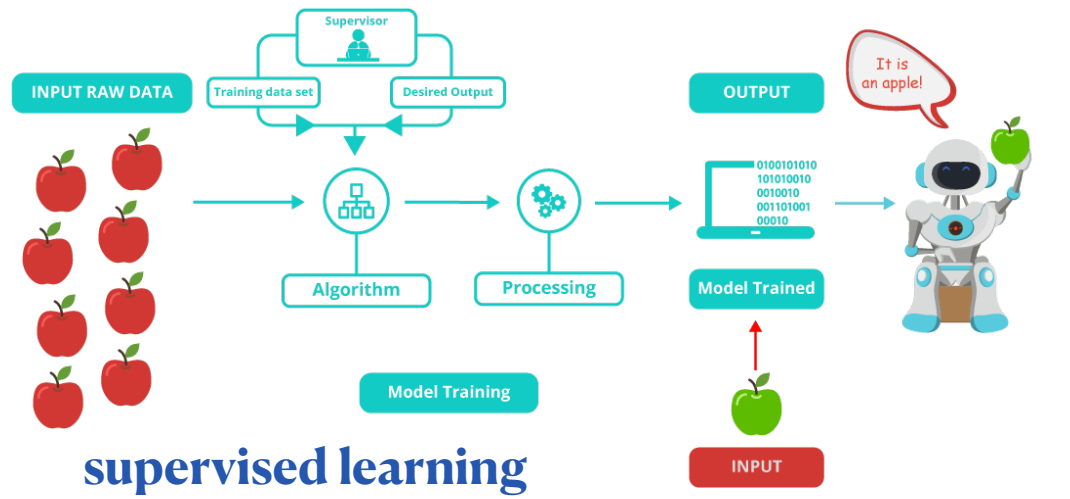
Algorithmic Behavior



Data is Everywhere



MACHINE LEARNING



ARTIFICIAL INTELLIGENCE
program with the ability to learn and reason like human

***DATA ENGINEERING**
***DATA MANAGEMENT**

supporting

methodology

DATA ANALYTICS
the process to uncover "hidden" patterns, unknown correlation, and other useful information



INSIGHT
by **describing** the phenomenon,
by **predicting** the value,
by **estimating** the future outcome,
by **optimising** the resources and the decision,
by **simulating** all the possible scenarios ..

benefit & application

- **Business** : market segmentation, personalized advertising, customer acquisition and retention, purchase behavior, brand awareness.
- **Transportation** : fastest route, real time tracking.
- **Communication** : information dissemination, early detection event, identification hoax / fake news / hate speech.
- **Precision Healthcare** : cancer detection, precision disease treatment and prevention.
- **Education and Entertainment** : recommender system, personalized content.
- **Banking** : fraud detection, risk analytics, credit score, recommended investment, smart accounting / auditing.
- **Society** : human / social quantification (people analytics).

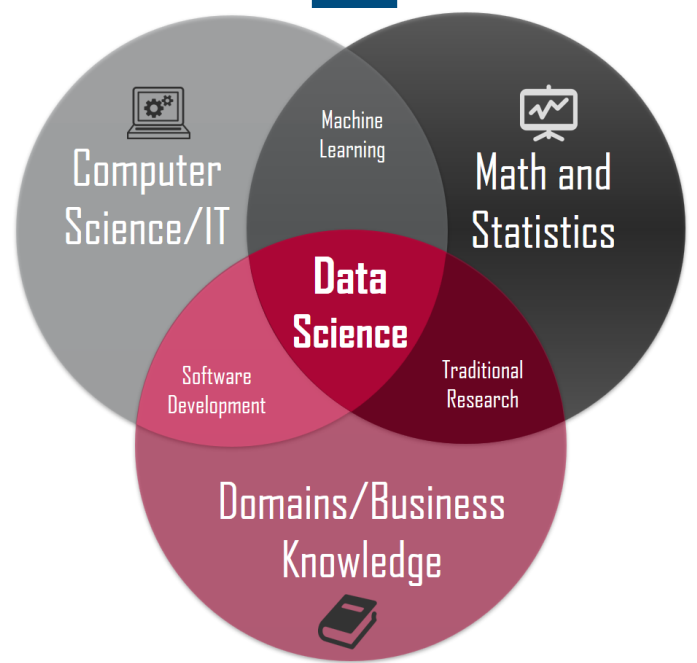
BIG DATA
(the V's data)
large, fast, complex

opportunity

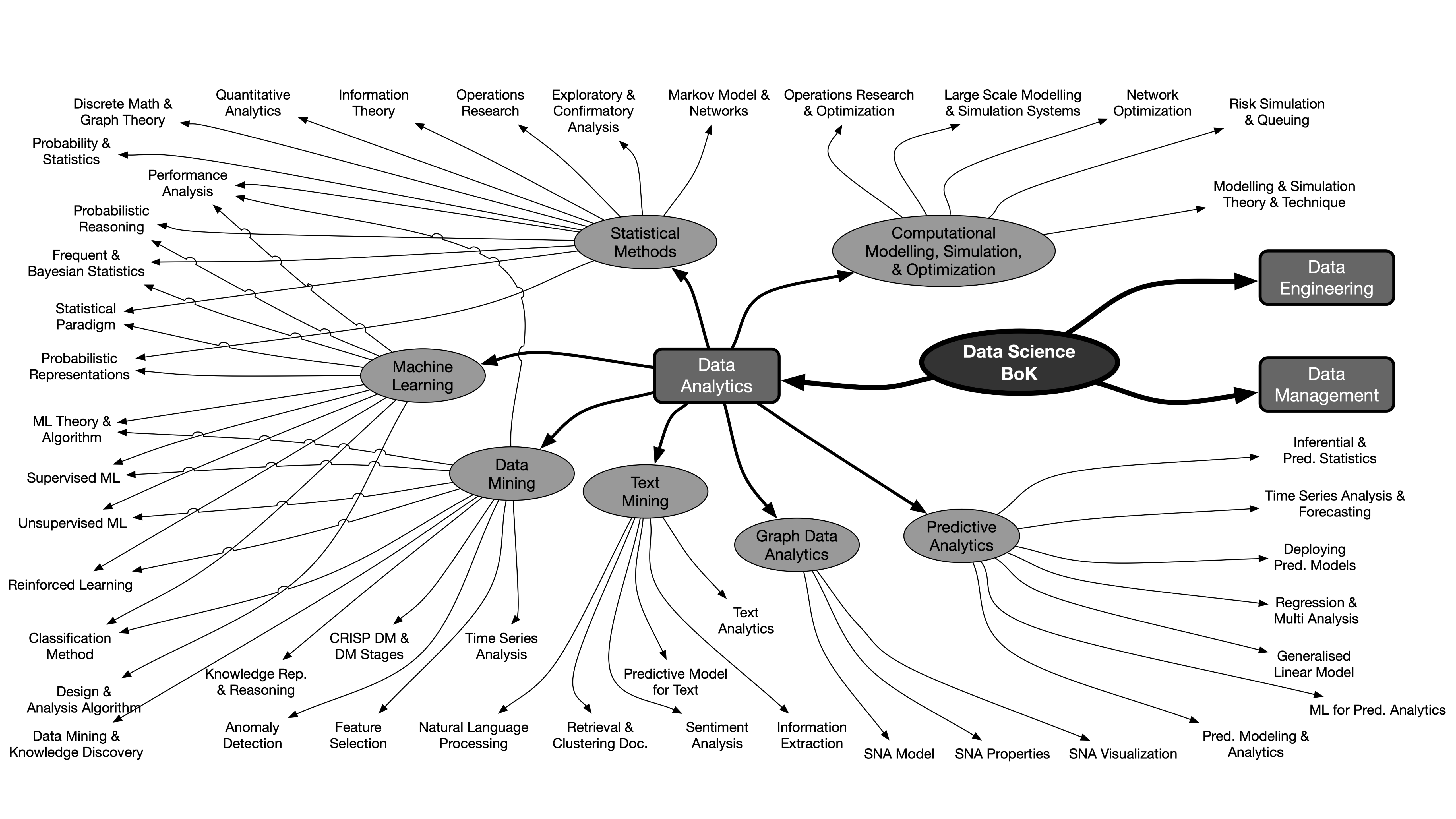
activity

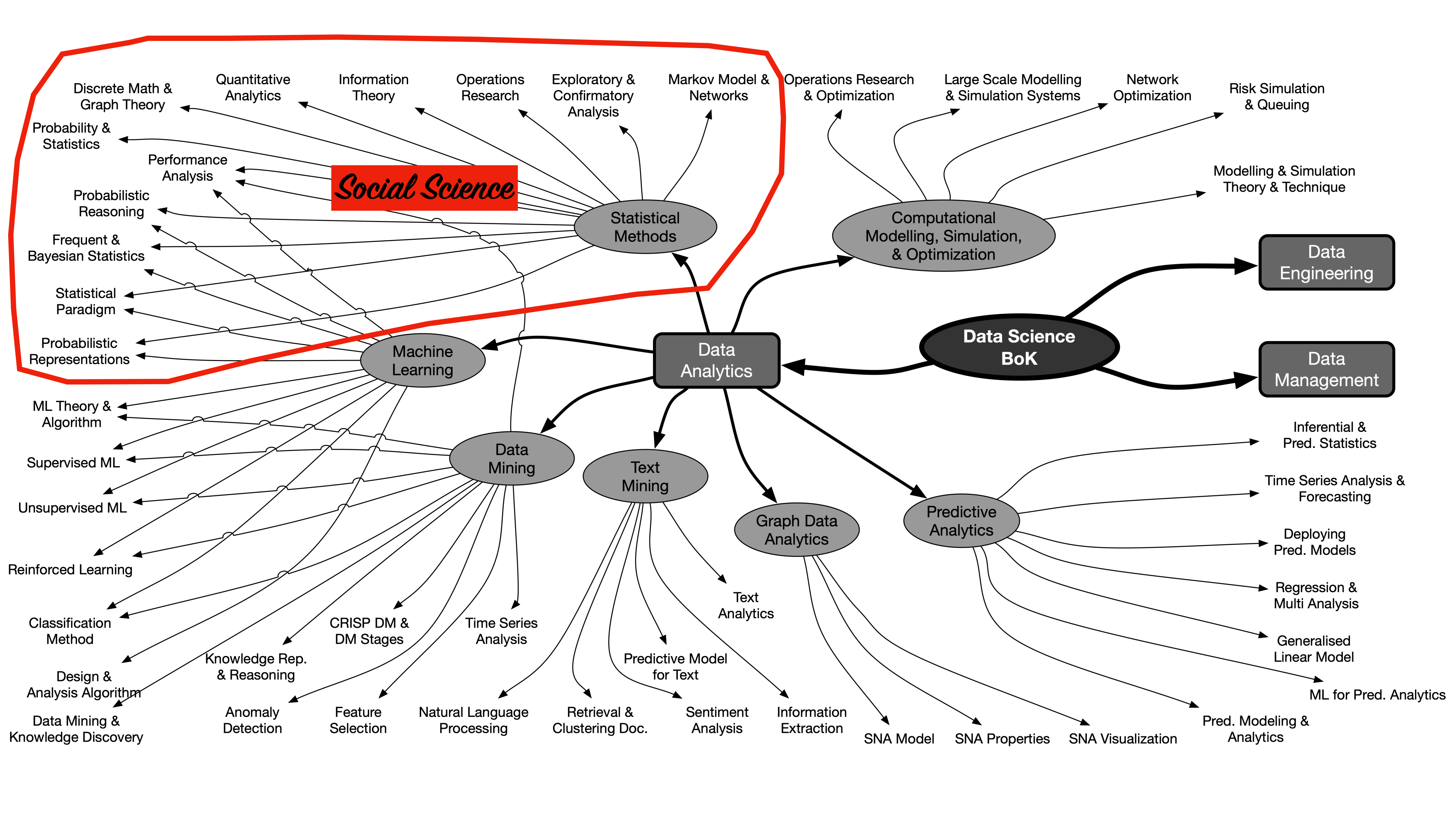
DATA SCIENCE
the science to extract knowledge / pattern from data

the science

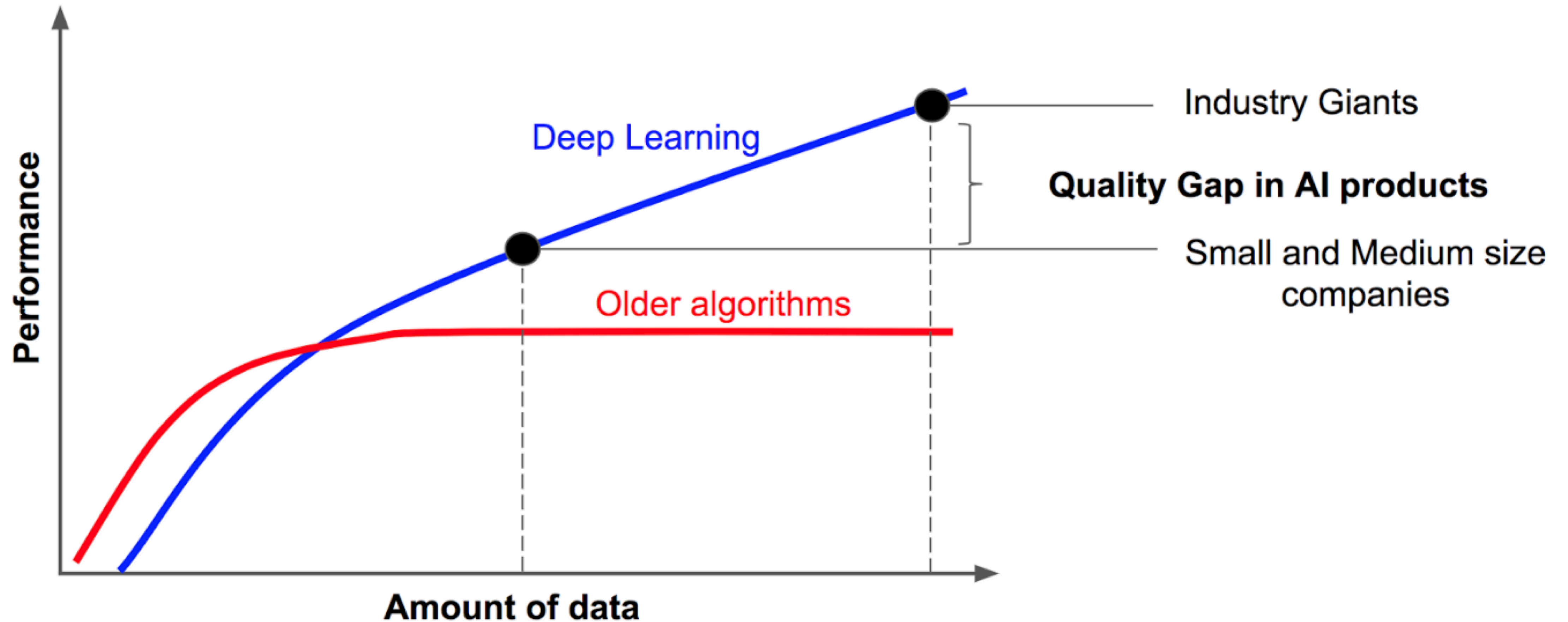


SOURCE
(human/social, machine, transaction)
review, opinion, conversation, network of friendship (social media), transaction data, historical data, CCTV, Vlog, location, tagging, sensors (IoT), etc





AI Power

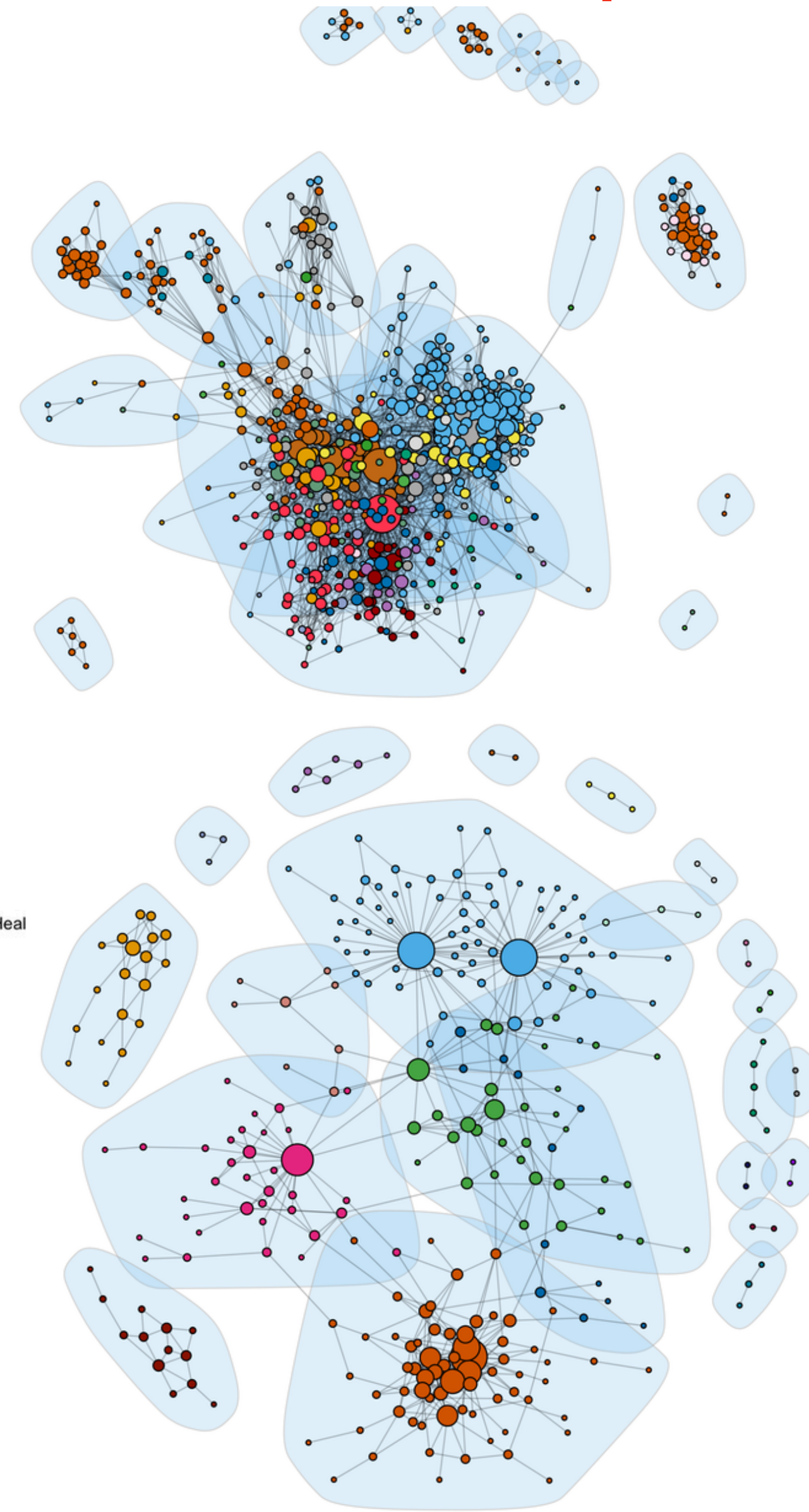
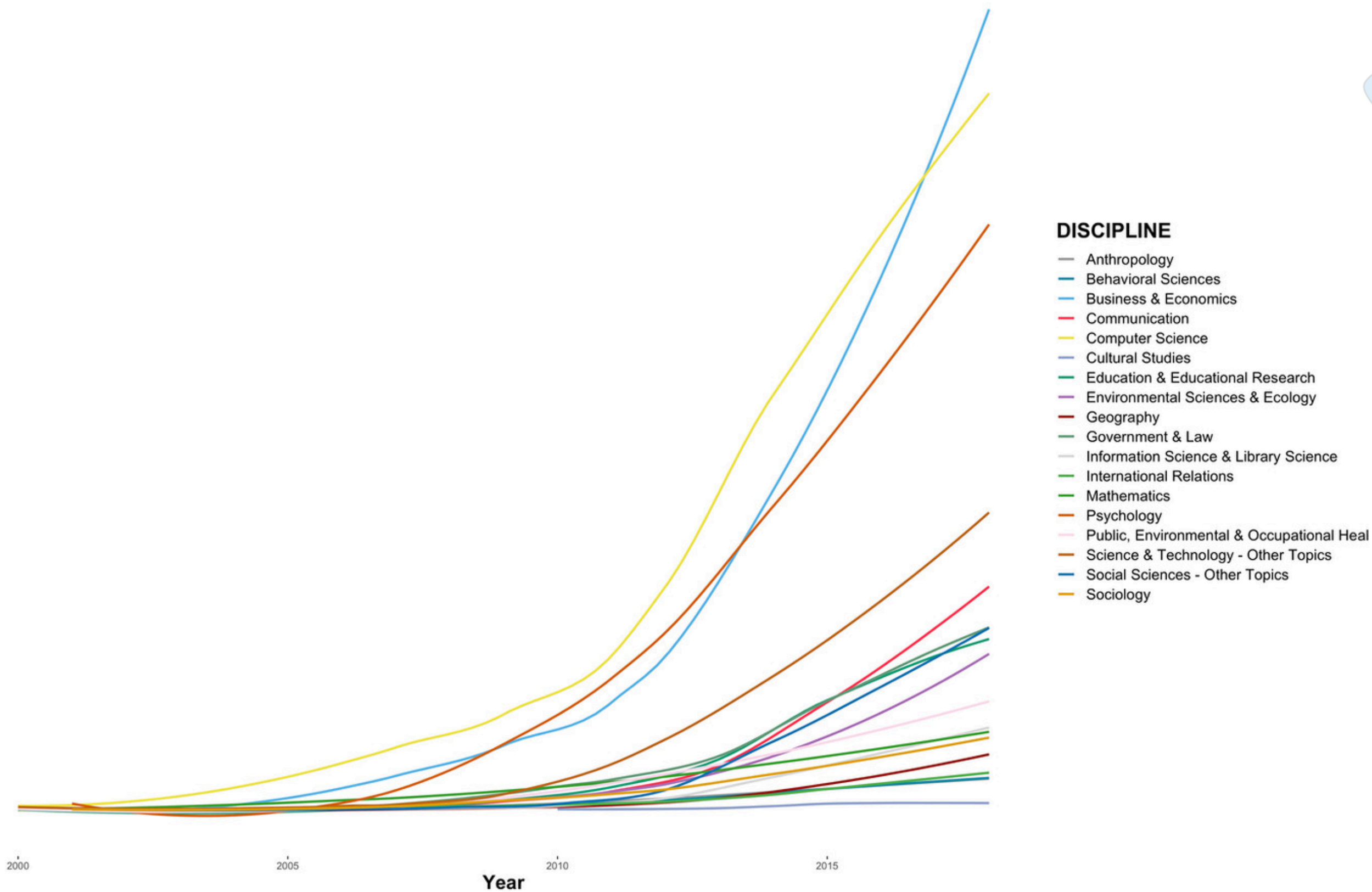


Deep Learning perform best for high complexity pattern, given large scale data as its source.

Computational Social Science

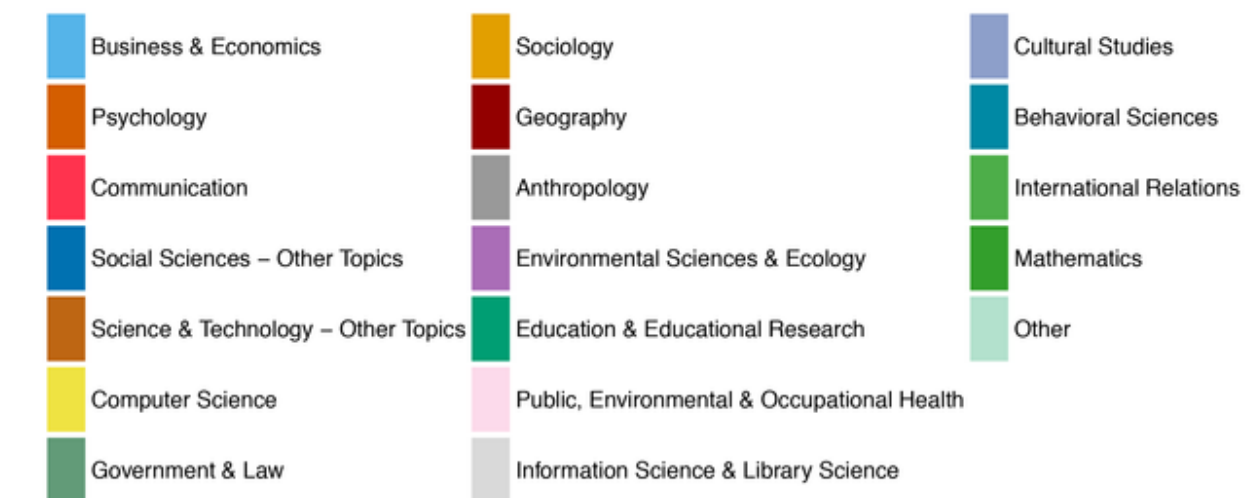
the study of human behavior using new digital data and methods from computer science and other STEM fields

NUMBER OF COMPUTATIONAL SOCIAL SCIENCE PUBLICATIONS BY YEAR



COMPUTATIONAL SOCIAL SCIENCE AS A NETWORK

Nodes colored by first-listed discipline



COMPUTATIONAL SOCIOLOGY

Labels indicate most distinctive words used in each community (TF-IDF)



Syllabus Example

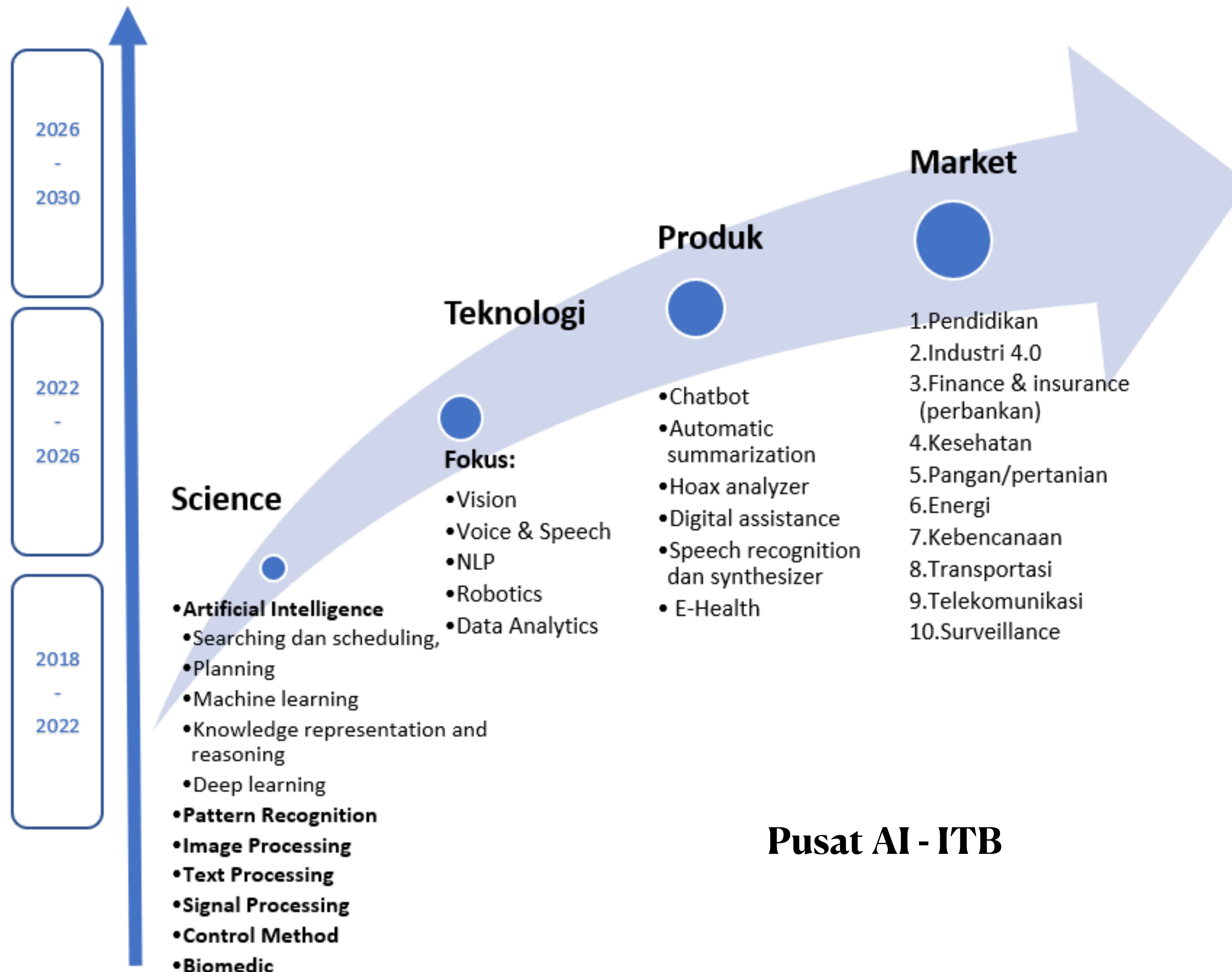
Digital Economy (FEB, Telkom University)

Computational Social Science (Michigan University)

AI in Social Science (Florida University)

	Digital Economy (FEB, Telkom University)	Computational Social Science (Michigan University)	AI in Social Science (Florida University)
1	What is Digital Economy?	Introduction to CSS	AI in Anthropology
2	Business Model and Ecosystem	Text as Data: CSS and Social Research - NLP Intro	AI in Economics
3	e-Business and e-Commerce	Text as Data: Sociology of Online Dating - NLP Methods	AI in Gender, Sexualities and Woman Studies
4	Pricing and Competition	Online Experiments and Music Lab	AI in Geography
5	Platform Strategy and Network Effects	Communities and Norms	AI in Linguistic
6	Search, Matching, Profiling, Recommender System	Communities in Flux	AI in Political Science
7	Big Data, AI, and Blockchain	From Data to Conclusions: Validity & Generalizability	AI in Psychology
8	Media and Advertising	Algorithm and Society	AI in Sociology
9	Collaborative Economy	Networks	AI in Criminology and Law
10	Sharing Economy	Using Network for Social Science	
11	Token Economy	Social Dynamics : Feedbacks in Social Environment	
12	Ethics and Digital Regulation	Social Dynamics : Behavior in Social Networks	
13	Leadership for Transformation and The Digital Frontier	The Cutting Edge	

AI Research Roadmap (Reference)



Things To Consider

1. AI in Social Science is too diverse - no single roadmap that fits all domains/sciences
2. Explainability issues hinder the latest most accurate AI methods (blackbox) implementation. Most social science needs to incorporate “inference” processes rather than just “accuracy” measurement. (Accuracy vs. Explainability issue)
3. For Social Sciences, AI could start from weak AI such as Machine Learning, SNA, Text Mining, and other CSS methodology
4. AI Roadmap for Social Sciences could follow the basic implementation of AI (weak AI), followed by a more advanced methodology on each phase.

THANK YOU

any question ?