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Motivation

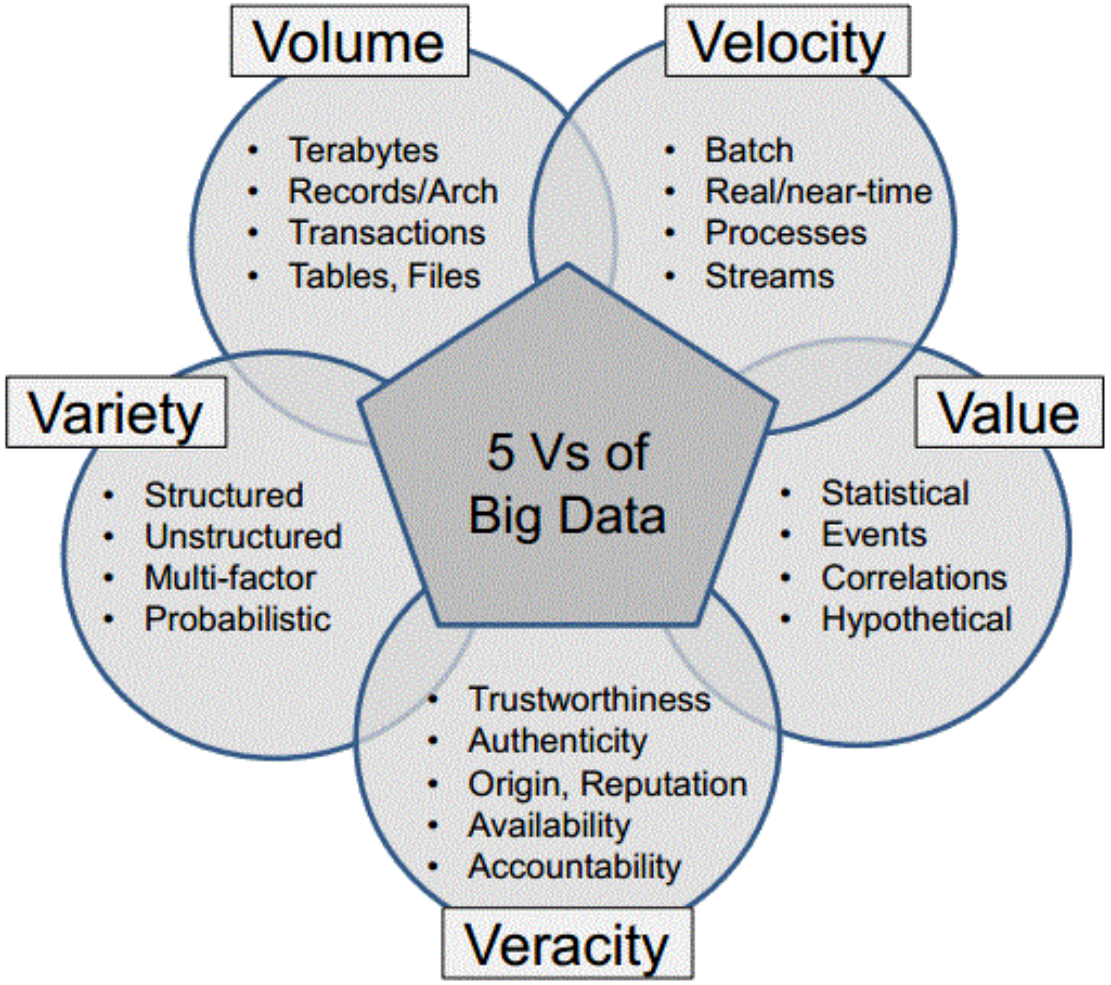
Advanced Methods for Geospatial Analysis

Big (Geo) Data

- Remote sensing and photogrammetric data captured from satellites, airplanes, UAVs, mobile platforms
- Cartographic and administrative data including volunteered geographic information (VGI) from open data portals (e.g. OpenStreetView)
- Ubiquitous sensors (including smartphone data)
- Social media data
- Medical data
- Space observations

- Big Geo Data → geo-located and time stamped data

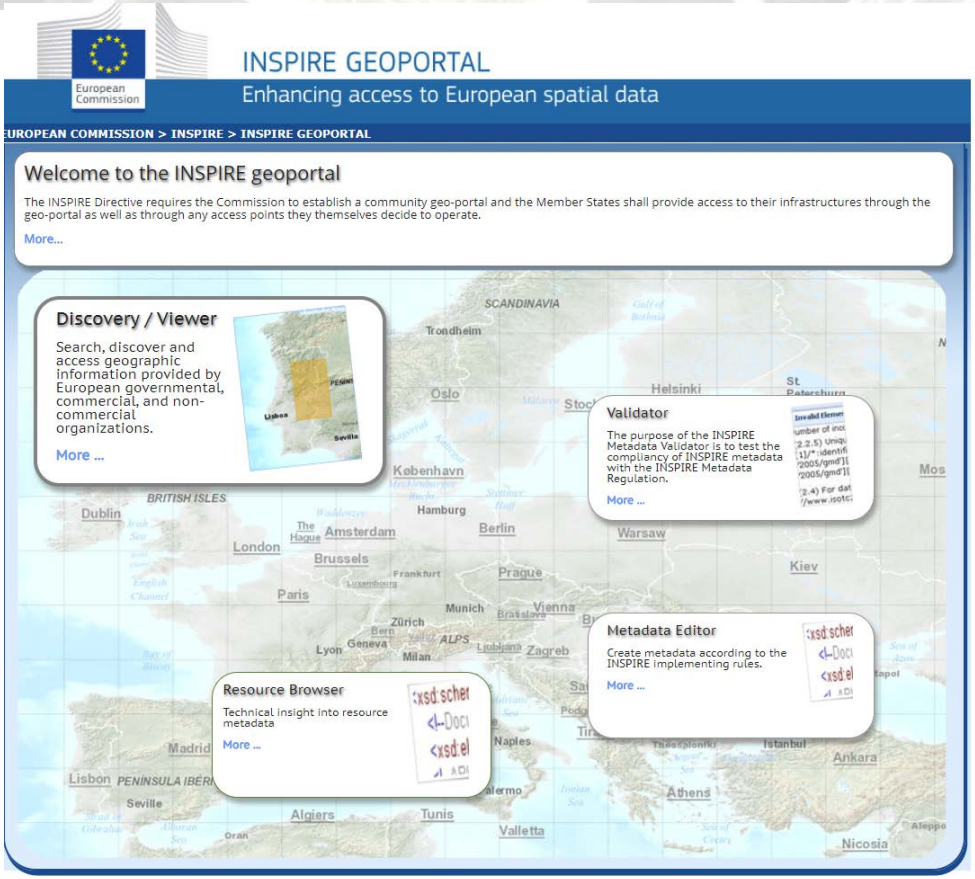
Big (Geo) Data


Volume
Terabytes
Records/Arch
Transactions
Tables, Files
Velocity
Batch
Real/near-time
Processes
Streams
Variety
Structured
Unstructured
Multi-factor
Probabilistic
5 Vs of
Big Data
Value
Statistical
Events
Correlations
Hypothetical
Trustworthiness
Authenticity
Origin, Reputation
Availability
Accountability
Veracity

Big (Geo) Data

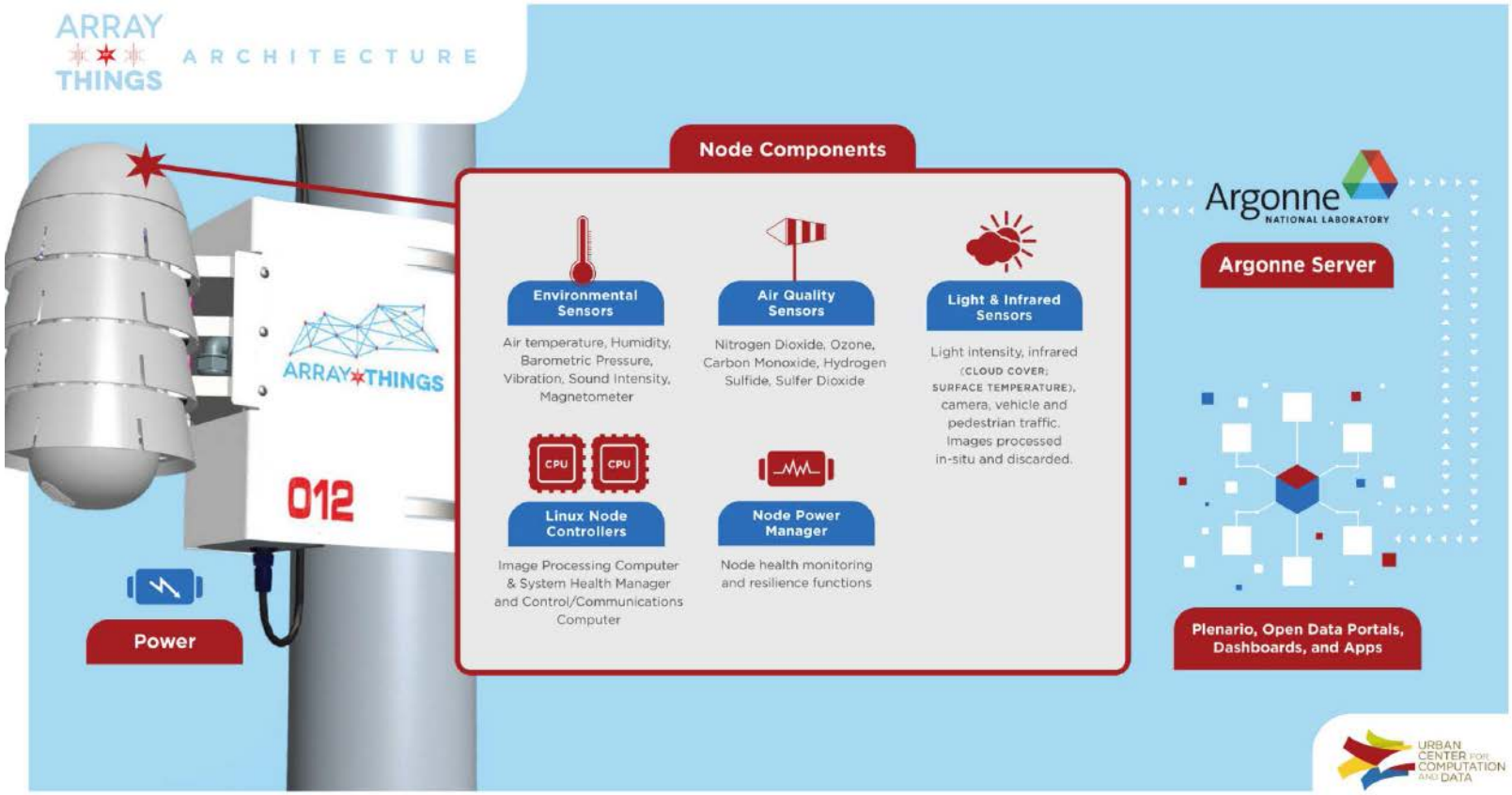
https://geoportal.brandenburg.de/startseite/

Big (Geo) Data



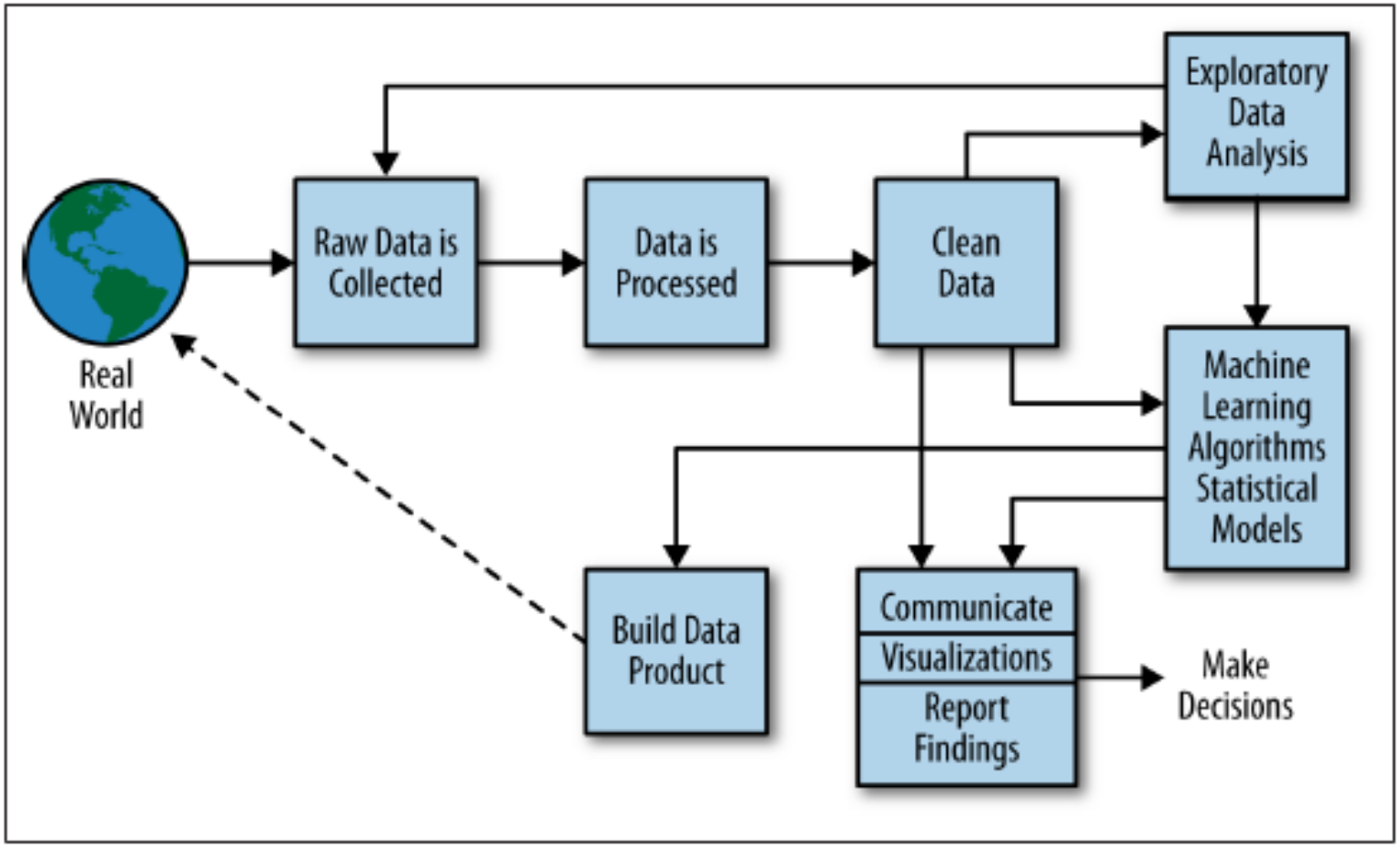
http://inspire-geoportal.ec.europa.eu//

Big (Geo) Data



https://arrayofthings.github.io/

(Geo) Data Science



(Geo) Data Science

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data science consists of

“statistical computing and how to

access,

transform,

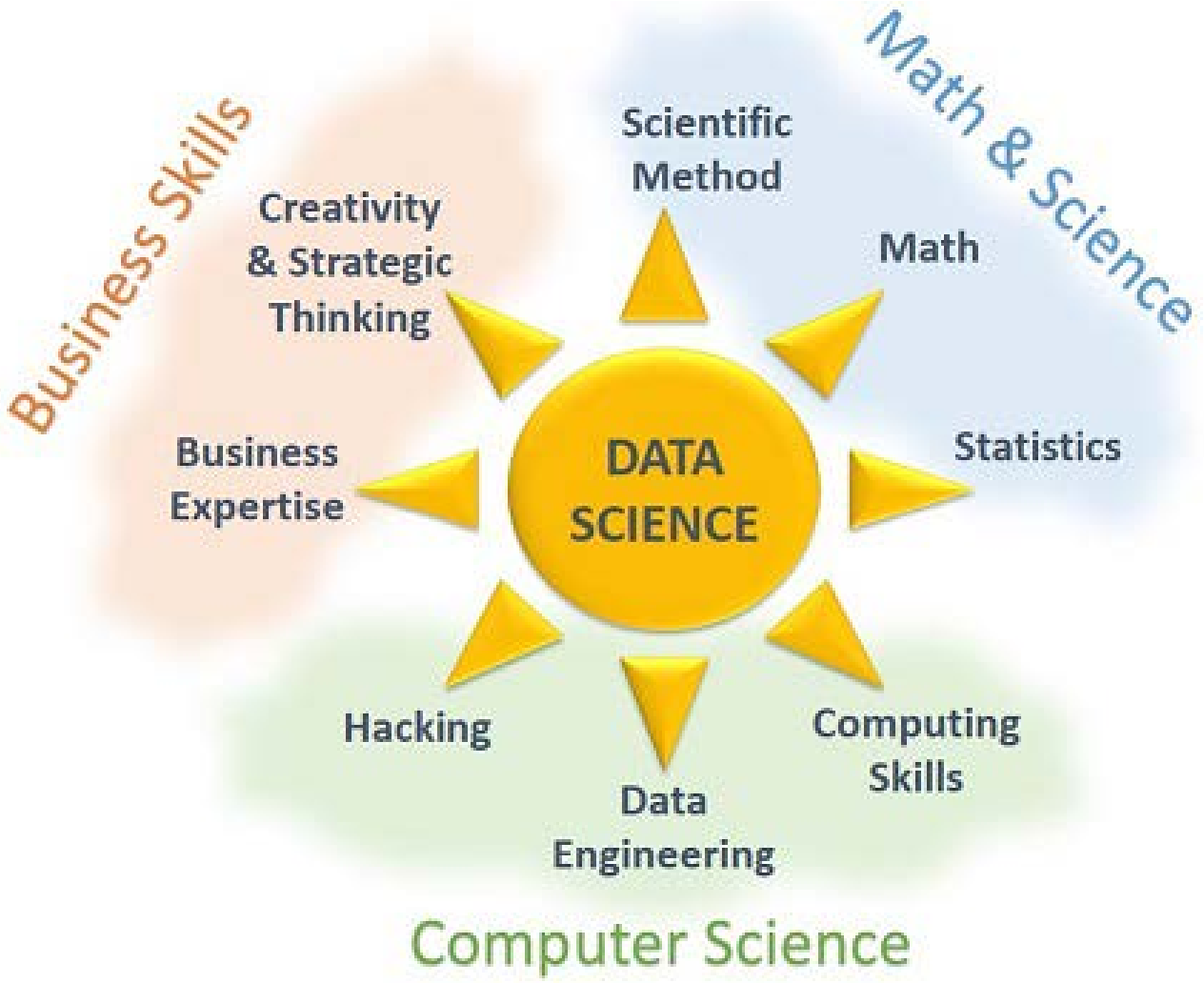
manipulate,

explore,

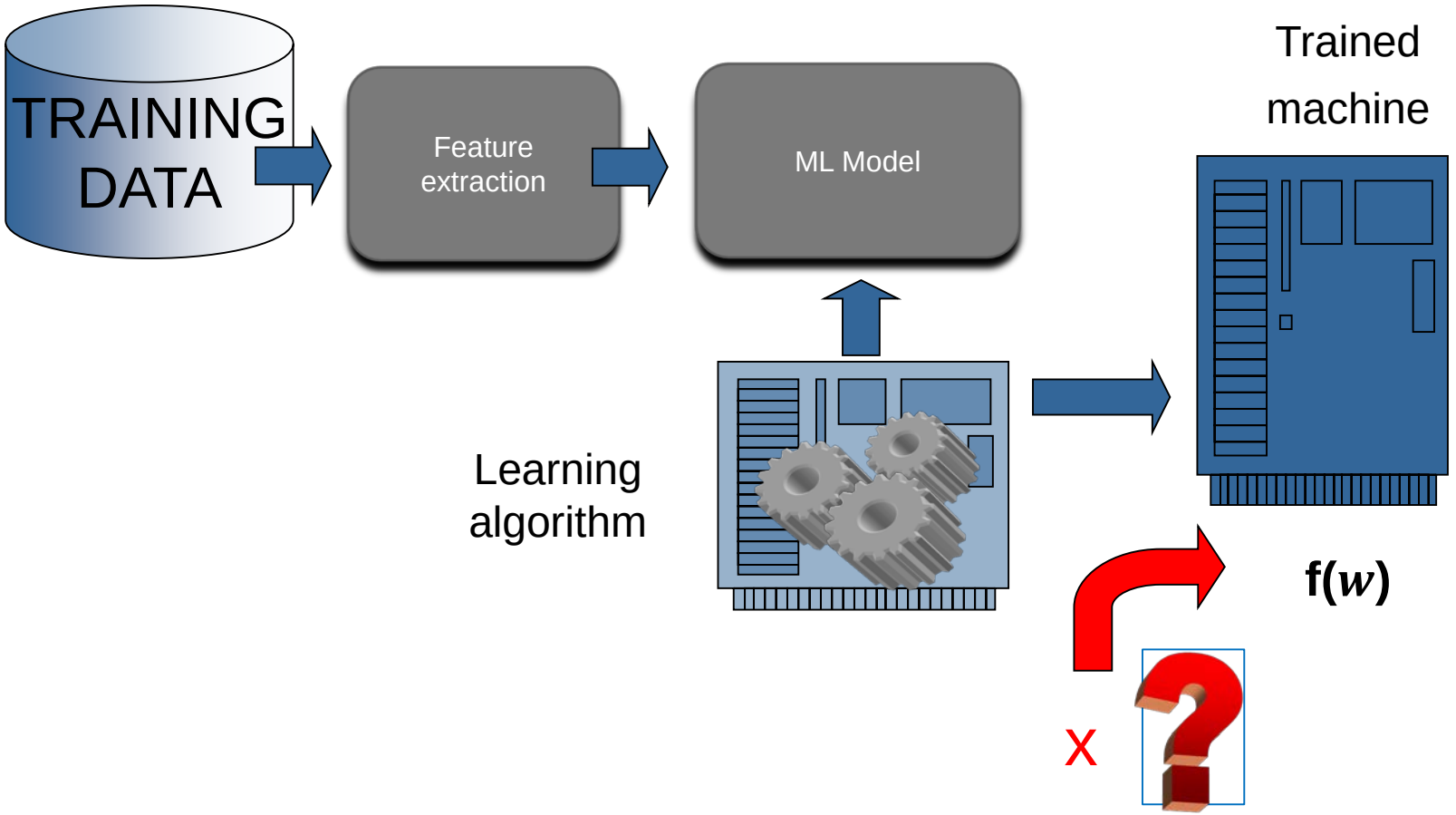
visualize

and reason about data”

(Geo) Data Science



Machine Learning



Deep Learning

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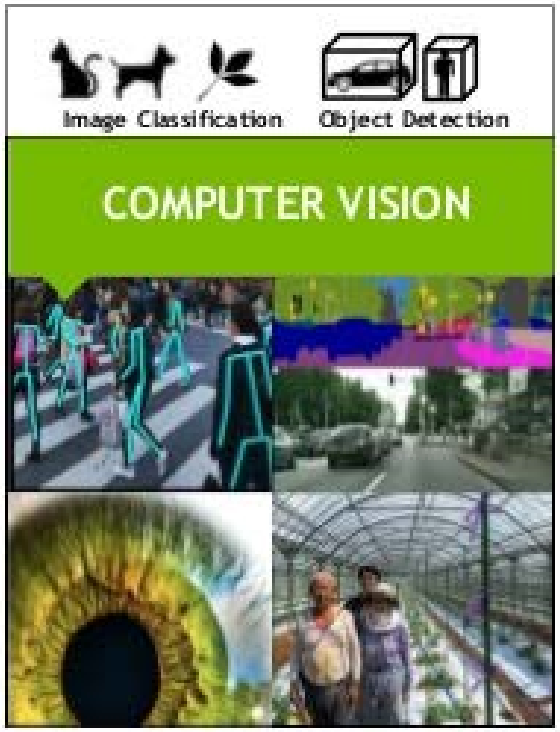
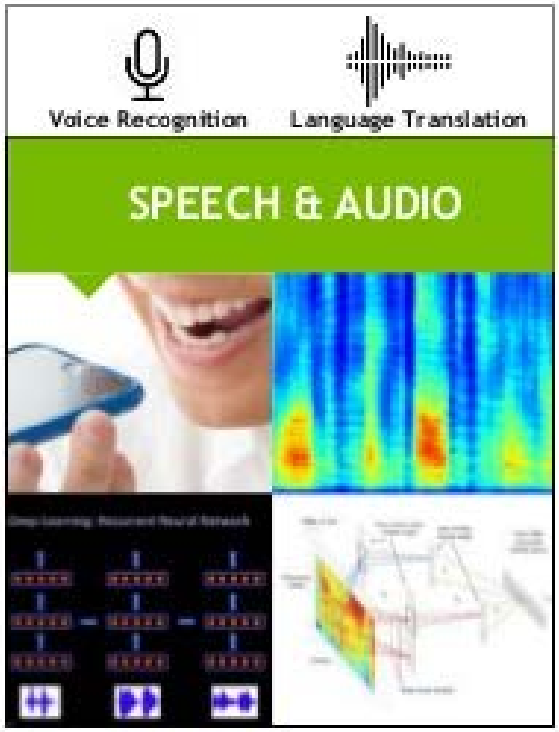
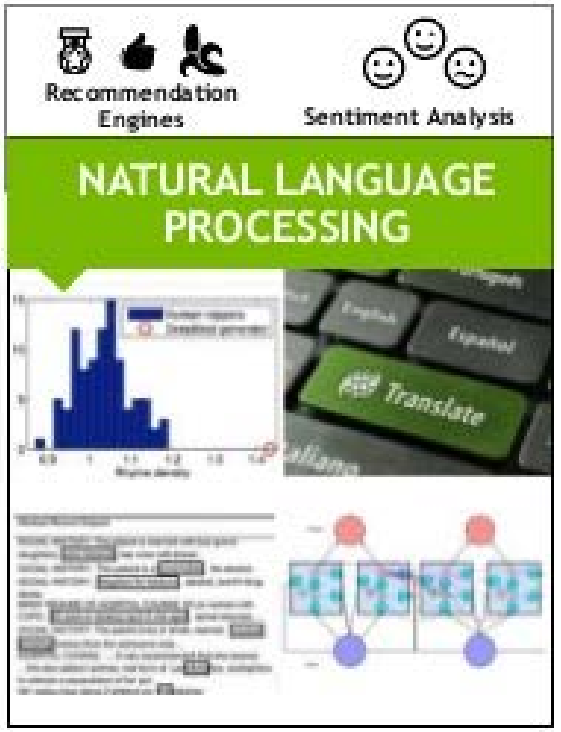
AI APPLICATIONS







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Speech recognition

star trek

Language translation

Deep Learning

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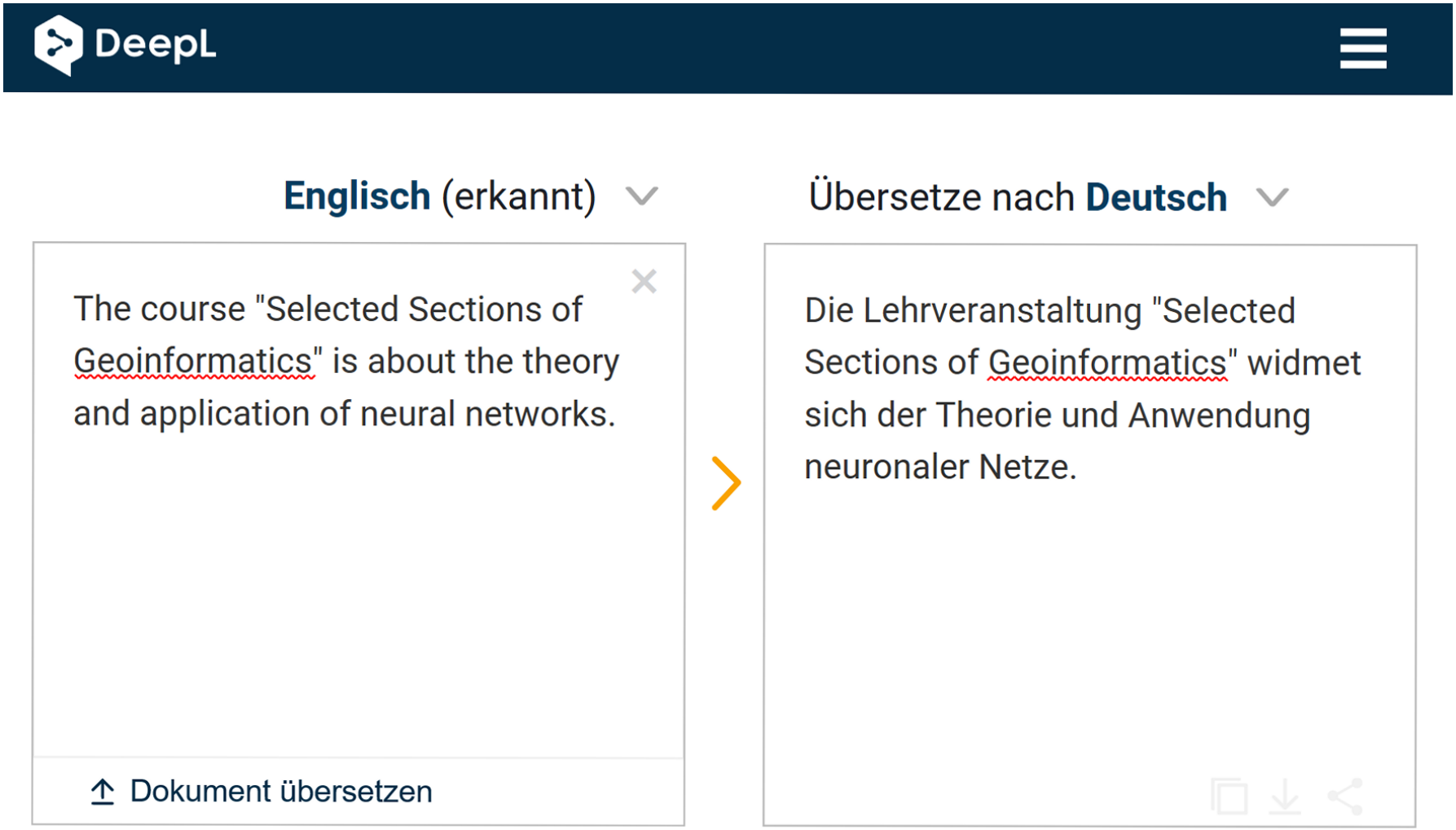

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Handwriting recognition

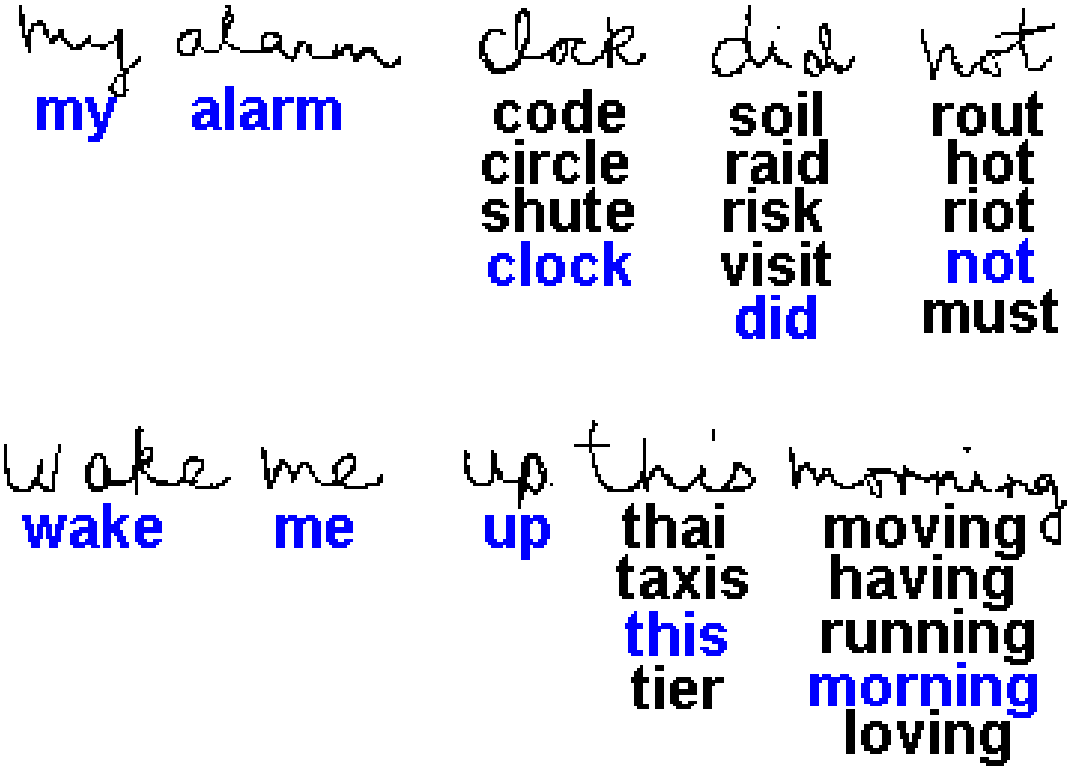

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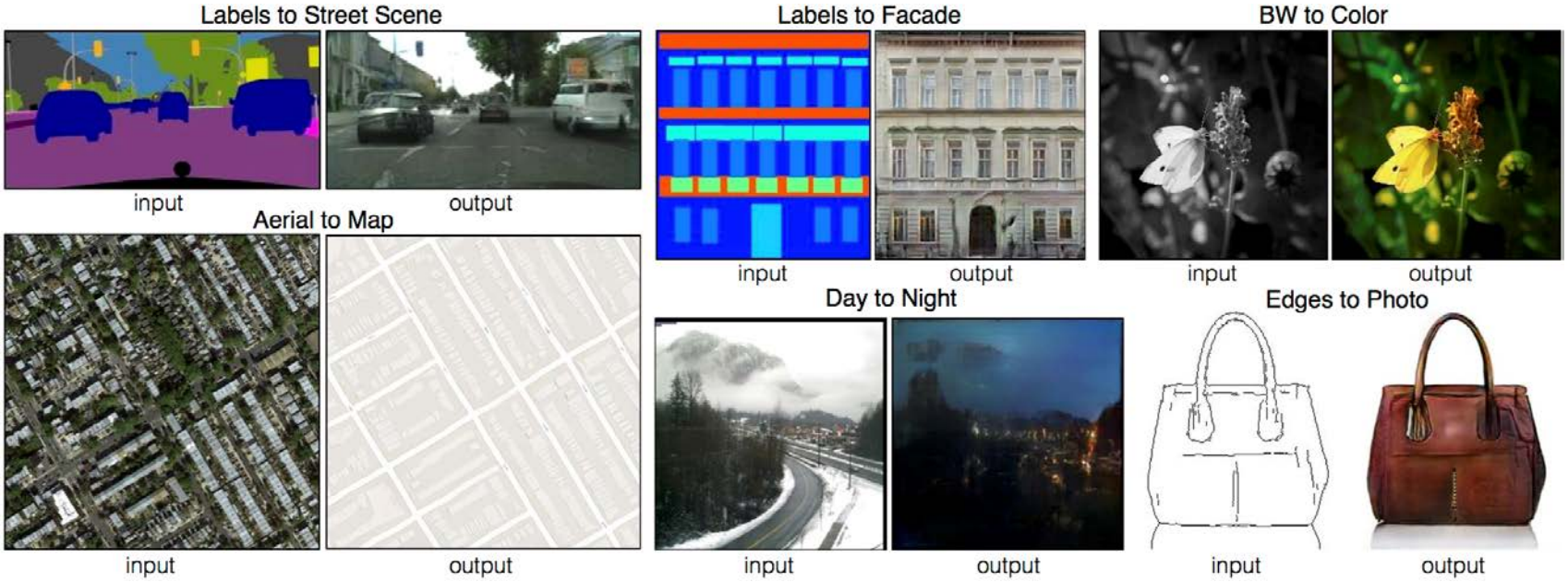
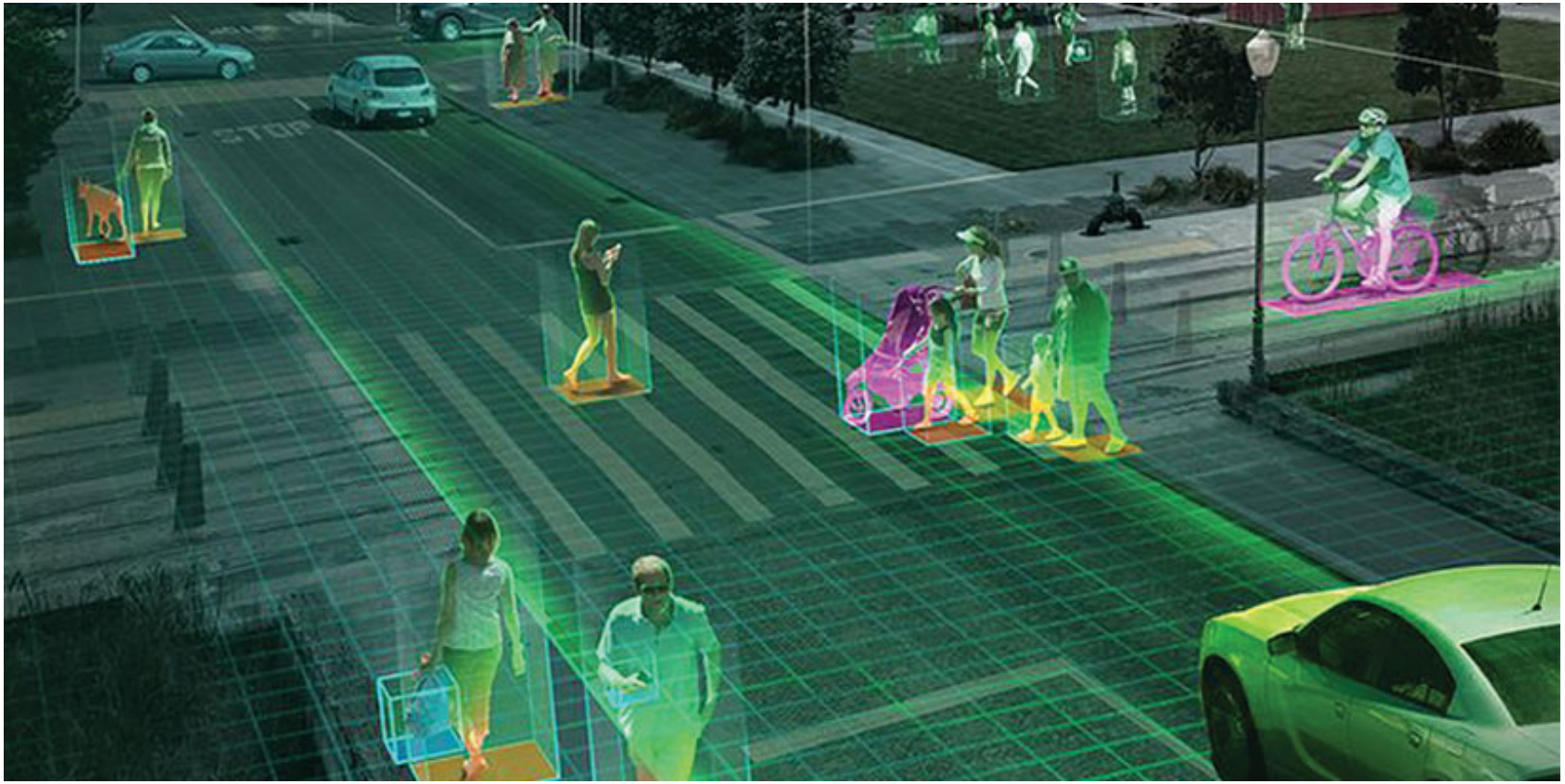
Image to image translation with generative adversarial networks (GANs)



Video analysis



Deep Learning

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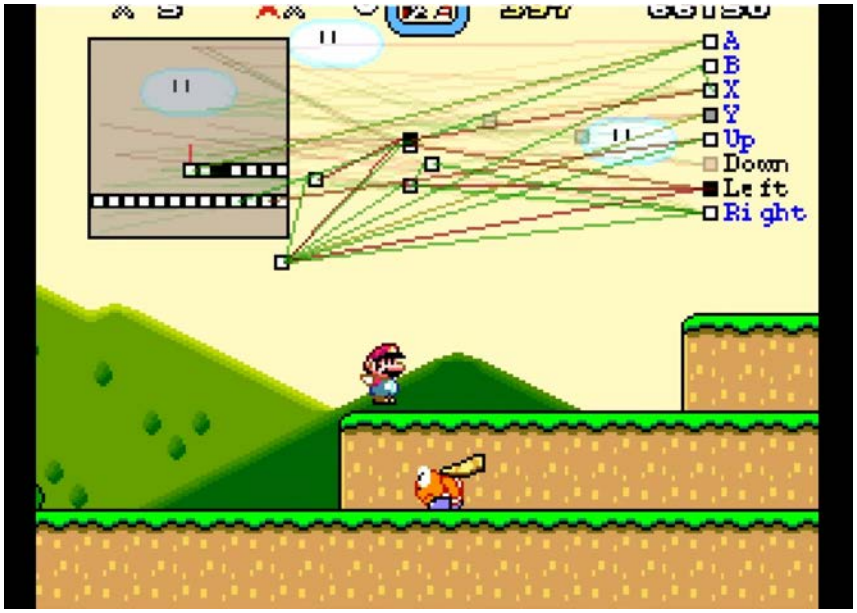
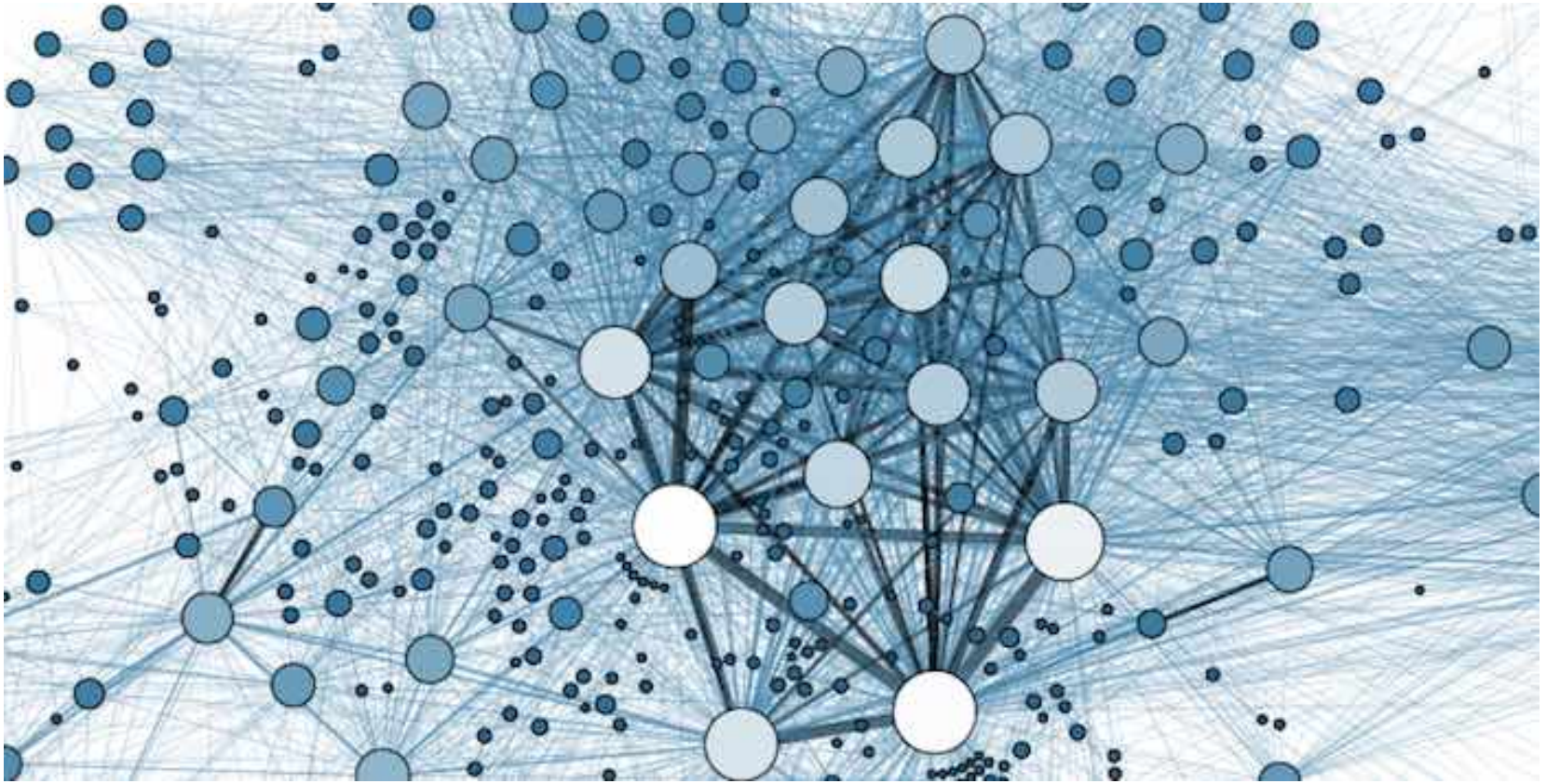
Gaming



alpha go

Social networks

facebook



Recommendation systems netflix