



FIFTH DIMENSION

INTELLIGENCE COMES TO LIFE

WHO ARE WE?

LEADING DEEP LEARNING AI GROUP

Well Recognized By Global AI IEEE Association

UNIQUE INDIVIDUALS

~85% PhDs or M.Sc. Mathematic or Data Scientist

HIGHLY EXPERIENCE

80% have 8-10 years in Elite IDF
Technology/intel units 8200/81/AF

STRONG MANAGEMENT

Chairman of the board
LTG Benny Gantz (res.)

Strategic Global Advisor
Four-star Gen. John R. Allen (res.)
EVPs From Global Vendor



Deep Instinct

תורת הסייבר המבטיחה בישראל

05/06/2016

Forget About Big Data: Teaching Computers to Think Just Like Humans Is the New Big Thing

Deep learning, the technology that gets computers to mimic the process occurring in the human brain, is the newest buzzword in the high-tech world.

Forbes

LA STAMPA

DER SPIEGEL

Companies That Use Deep Learning To Produce Actionable Results

L'esperto israeliano di sicurezza: "L'Europa deve rivedere le leggi sulla privacy"

Hacker aus dem Staatsdienst

LOVCI NA TERORISTE IMAJU NOVO MOĆNO ORUŽJE 'Stvorili smo ubojiti digitalni mozak koji otkriva teroriste i predviđa njihovu metu'

Israeli companies are leading in IT security - many founders have worked in intelligence agencies. In German terms, their experiences are highly valued.

Deep Instinct

Benny Gantz says deep learning artificial intelligence will help Israeli firms to be global success

Former IDF chief to chair big data co Fifth Dimension

OUR MARKET



SECURITY & DEFENSE



ENTERPRISE

OUR TARGET MARKETS

Intelligence agencies



Law enforcement



Insurance



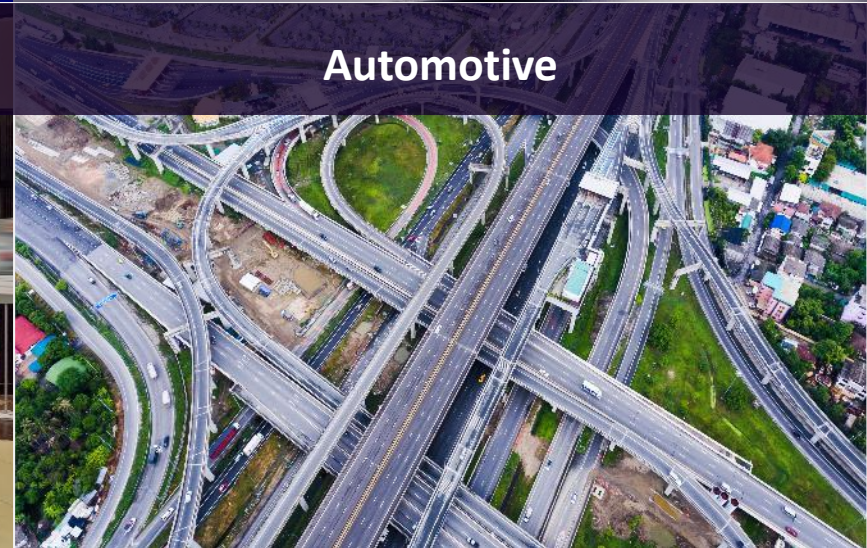
Financial institutes



Retail



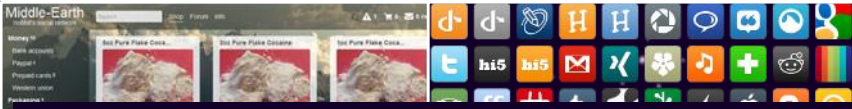
Automotive



WHY WE ARE HERE ?



MORE DATA THAN EVER



UNSTRUCTURED DATA



NEW METHODS OF CRIME



1g High Quality Cocaine 90%+
By RICH_KUKLINSKI (99.4%) Level 6 (2007)

Escrow Yes, escrow by Evolution is available. Favorite Question

Class Physical

Qty: 1 Buy It Now



Congratulations!
This browser is configured to use Tor.
You are now free to browse the Internet anonymously!
[Test Tor Network Settings](#)

Search occurs with Startpage.

What Next?
Tor is NOT all you need to browse anonymously! You may need to change some of your browsing habits to ensure your identity stays safe.

You Can Help!
There are many ways you can help make the Tor Network safer and stronger:
• Run a Tor Relay Node
• Volunteer Your Services
• Make a Donation



MULTIPLE SYSTEMS



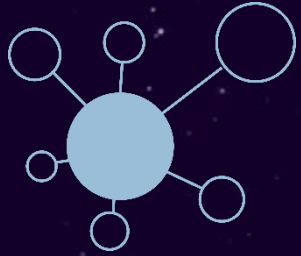
THE HIDDEN VALUE BURIED IN YOUR DATA

A person's hands are visible, emerging from a large, dense pile of crumpled white paper. The left hand holds a small white sign with the word "HELP" written on it in black marker. The right hand is raised, palm facing forward, in a gesture of helplessness or frustration. The background is a solid dark color, making the white paper and hands stand out.

HELP

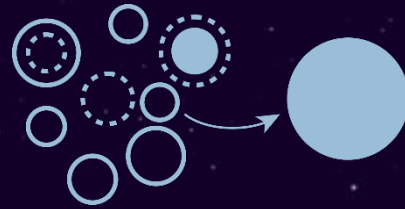
SHIFT FROM COLLECTION TO FUSION, PREDICTION AND MASS DATA ANALYTICS

WHAT WE ARE DOING ?



UNIFIED INTELLIGENCE

Mass scale fused data framework generates a unified environment in which all data can be accessed, searched and analyzed



EXTRACT INSIGHT FROM MASSIVE DATA

Using deep learning to automatically discover patterns and anomalies among entity profiles



PREDICT AND PREVENT

Predicting terrorist attacks and anticipating emerging threats

HOW DO WE DO IT?

STRUCTURED OR UNSTRUCTURED
WE REVEAL THE HIDDEN VALUE FROM MASS DATA AND
APPLY DEEP LEARNING TO ENABLE AUTOMATIC,
REAL-TIME PREDICTIVE INSIGHTS

HOW DO WE DO IT?

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INTELLIGENCE VALUE CHAIN

Analysis



- Entity Profiling model
- Automatic pattern recognition
- Automatic anomaly detection
- Risk ranking
- Link analysis
- Investigation suite
- Similarity cloud
- Geographical investigation
- Unstructured search
- Advanced text analysis
- Group and communities analysis

Mass Data Fusion



- Mass scale
 - any source, any type
 - Peta Scale
 - Linearly Scalable
 - COTS hardware
 - On Premise Deployment
 - Cutting edge technology
- Unstructured handling
 - Speaker recognition
 - Face recognition
 - Object detection
 - Entity Extraction
 - Text similarity
 - Video analysis*

Collection Processing

FIFTH DIMENSION – THE ONLY PLAYER WITH 4 PILLARS IN ONE SYSTEM



Mass Scale Data Fusion



Unstructured Data Analysis



Automated Insights



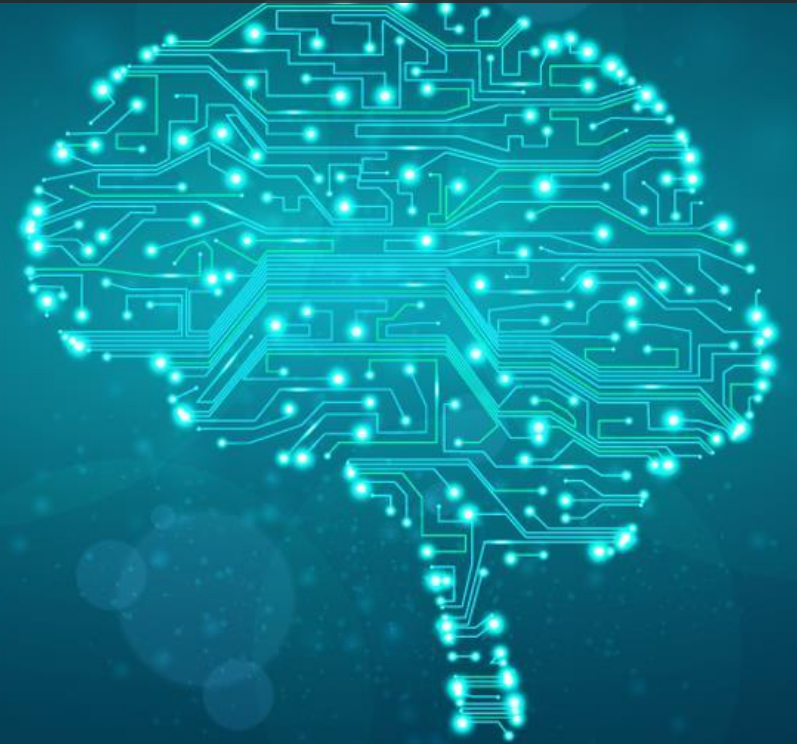
Investigation Suite

OUR CORE COMPETENCE

MASS SCALE DATA MODEL



DEEP LEARNING ANALYSIS



MA

BIS

5TH DIMENSION

Item: Gibson Home Soho Lounge Square 16-Piece Dishwasher Set
Walmart #: 551477817

Work: Feb 24, 2016 15:28:53



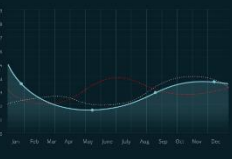
CONSUMER STATISTICS

- 45-51
- 39-44
- 32-38
- 26-31
- 18-25

STORE LOCATION



INVENTORY ANALYSIS

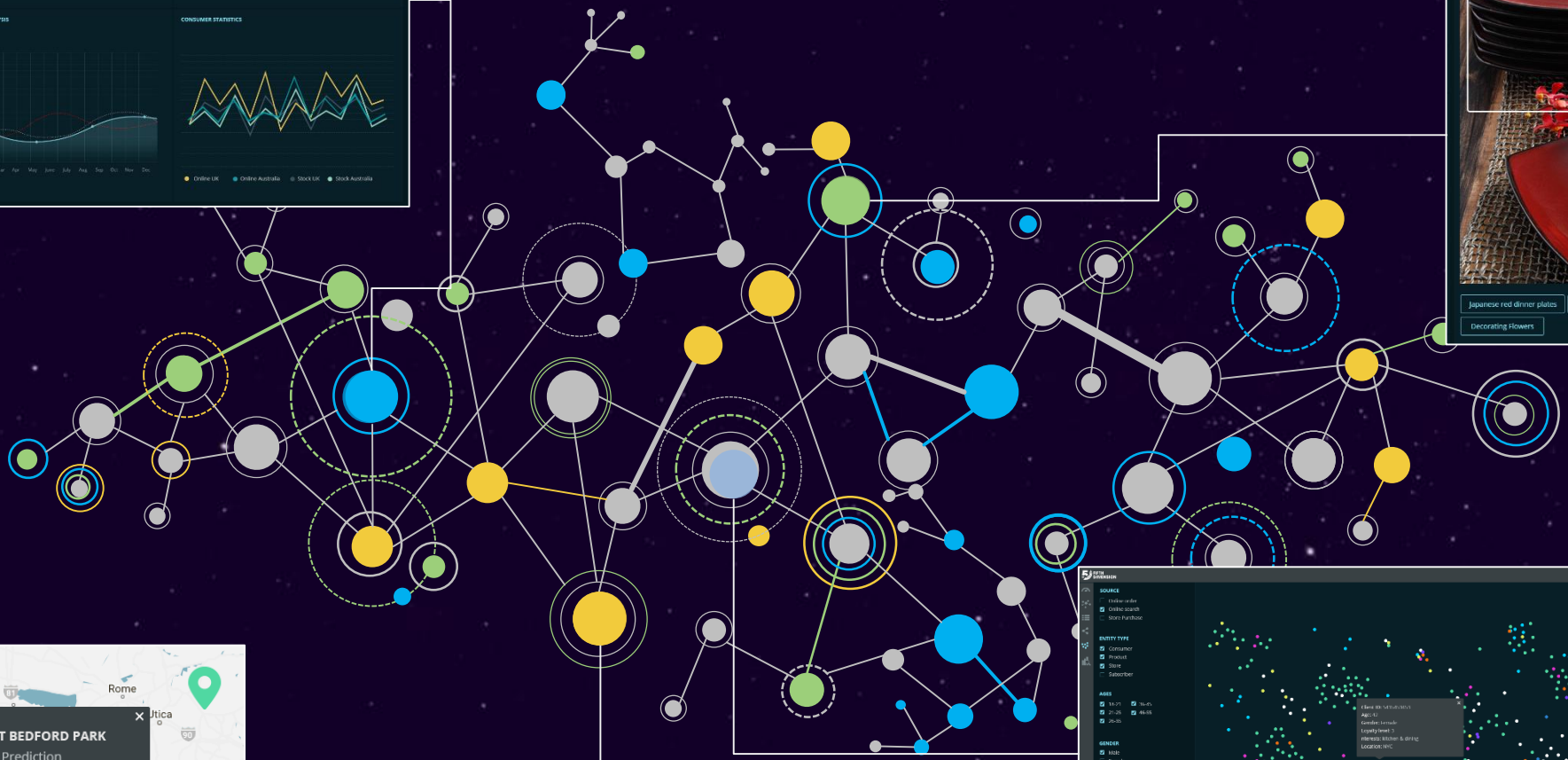
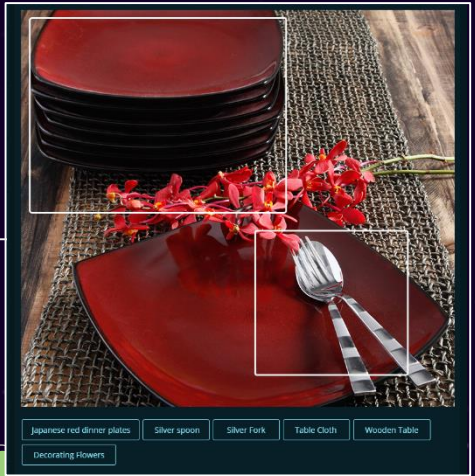
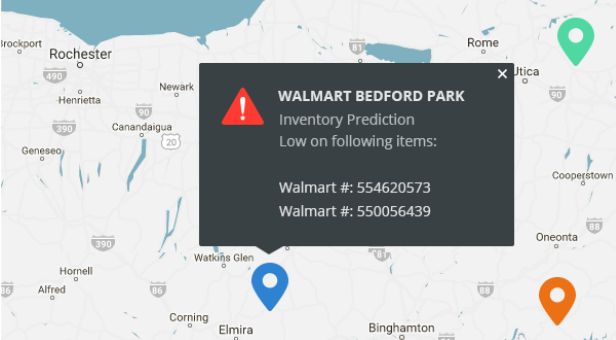


CONSUMER STATISTICS

- Drive UK
- Drive Australia
- Stock UK
- Stock Australia

SIMILAR PRODUCTS

- Gibson Ceramica Dishes
36 Piece Dishwasher Set
Walmart #: 551477817
- Gibson Home Soho
Square Plates
Walmart #: 551477817
- Gibson Home Soho
Square Dinner Plates
Walmart #: 551477817
- Gibson Home Soho
12 Premium Soup
Square Dinner Plates
Walmart #: 551477817
- Gibson Home Soho
16 Piece Dishwasher
Walmart #: 551477817
- Gibson Home Soho
16 Piece Dishwasher
Walmart #: 551477817

WALMART BEDFORD PARK
Inventory Prediction
Low on following items:

Walmart #: 554620573
Walmart #: 550056439

5TH DIMENSION

Work: Feb 24, 2016 15:28:53

SOURCE

- Drive India
- Drive Australia
- Store Hardware

ENTITY TYPE

- Consumer
- Product
- Store
- Subscriber

AGE

- 16-21
- 21-25
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75-84
- 85+

GENDER

- Male
- Female
- Unknown

SEASON

- Spring
- Summer
- Fall
- Winter

Filter: (16-21) (21-25) (25-34) (35-44) (45-54) (55-64) (65-74) (75-84) (85+)

Gender: (Male) (Female) (Unknown)

Season: (Spring) (Summer) (Fall) (Winter)

Walmart #: 551477817

radical breach... | ask.fm album... | All Data | 28x20880-6ec... | Jam

Furqaan Bey Display 1 results using 1 filters

Furqaan Bey
 Risk: 37% | Role: Dem Rep Q...
 Status: | Additional Names: |
 Date Of Birth: 13/03/1984 | Phone Number: 447047227
 Gender: Male

TOP LINKED ENTITIES

| | | |
|-----------------------------|----------------------------|---------------------------|
| Wyatt Delacruz Risk: 20% | Zameel Akhtar Risk: 51% | Abdul Fataah Risk: 51% |
| Ralph Rice Risk: 17% | Carlos Parker Risk: 36% | Daud Kelly Risk: 64% |

ROUTINE LOCATIONS

ITEM TYPES

| | | | |
|------|-------|-------------------|-------|
| IPDR | Image | Social media post | Voice |
|------|-------|-------------------|-------|

Amount of calls

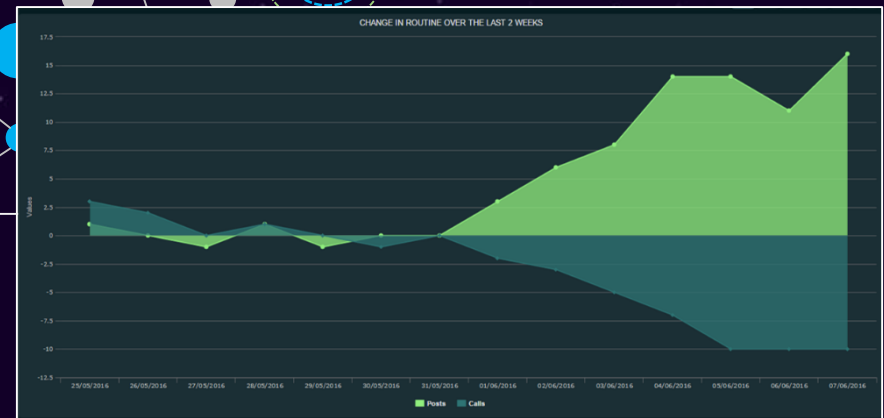
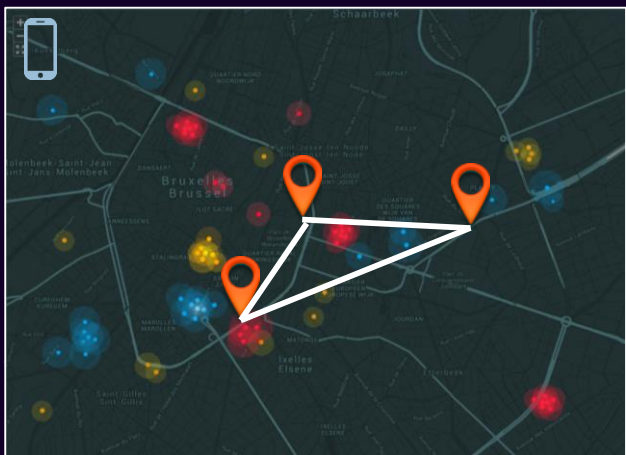
ID: 5435613456452
 Type: Video
 Service: Youtube
 Source: Webint
 Channel: Furqaan4hijra

Related Entities

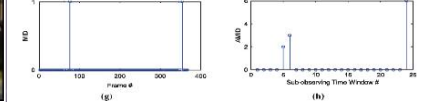
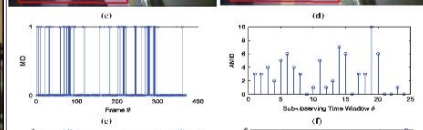
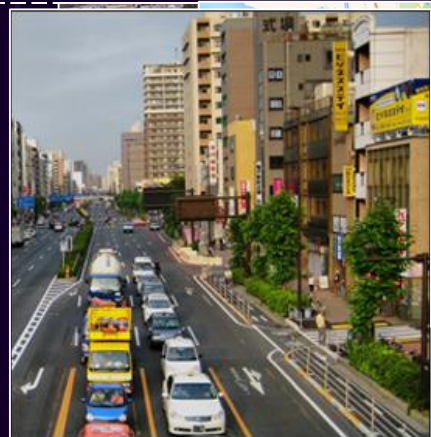
| | | |
|--------------------------|-------------------------|----------------------------|
| Furqaan Bey Risk: 95% | John Brown Risk: 80% | Ibrahim Awsha Risk: 78% |
|--------------------------|-------------------------|----------------------------|

Related Items

| | | |
|-------------------------------------|-------------------------------------|-----------------------------------|
| 25/12/15 18:45 Source: Sigint_93 | 25/12/15 18:45 Source: Sigint_54 | 25/12/15 18:45 Source: Youtube |
|-------------------------------------|-------------------------------------|-----------------------------------|

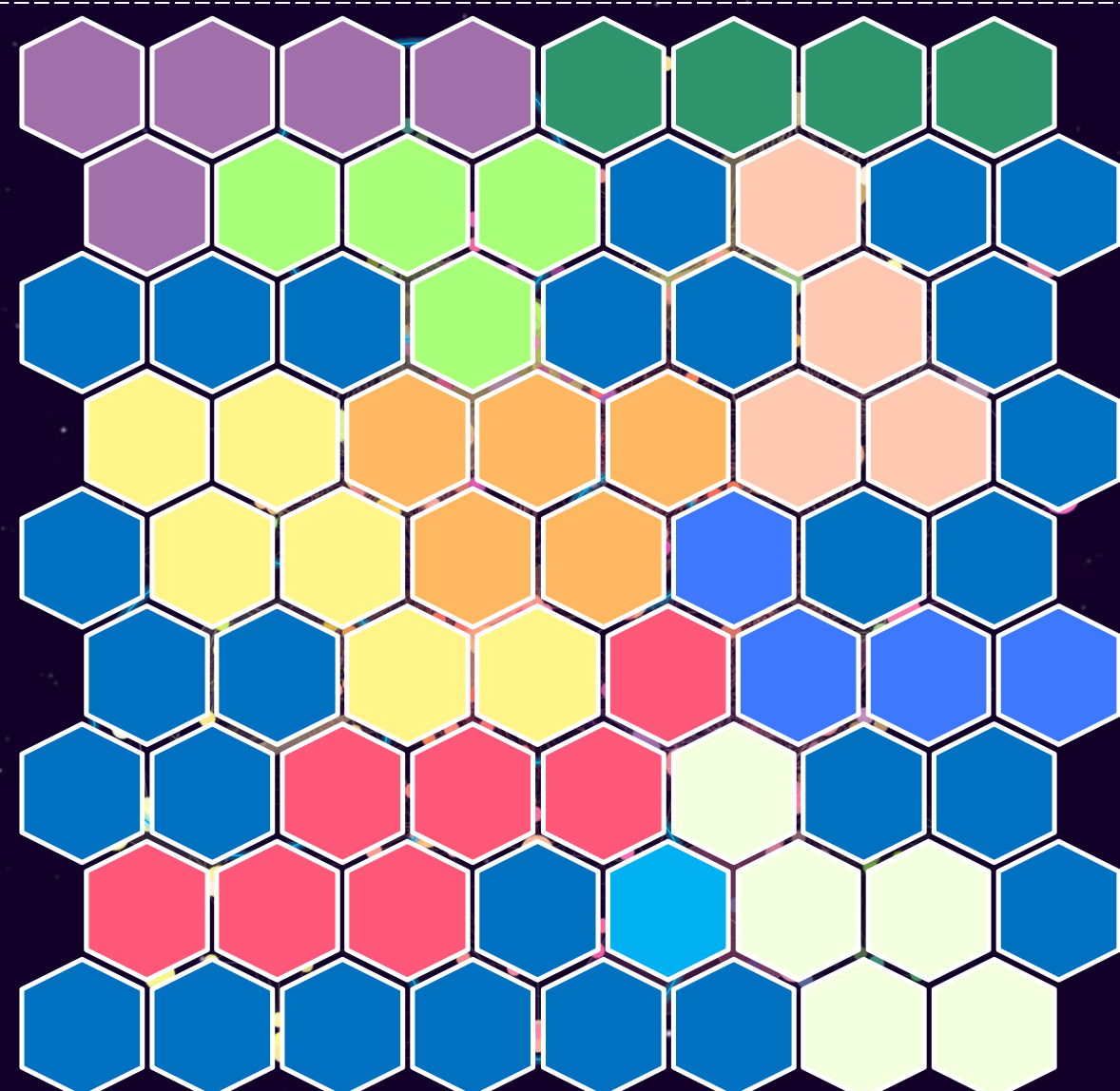
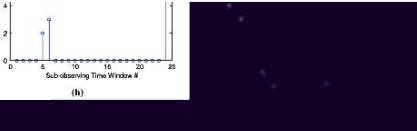
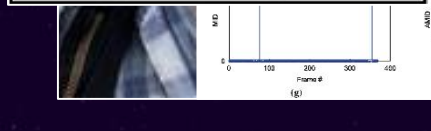


MASS PROFILING & PRESENTATION OF THE REAL WORLD



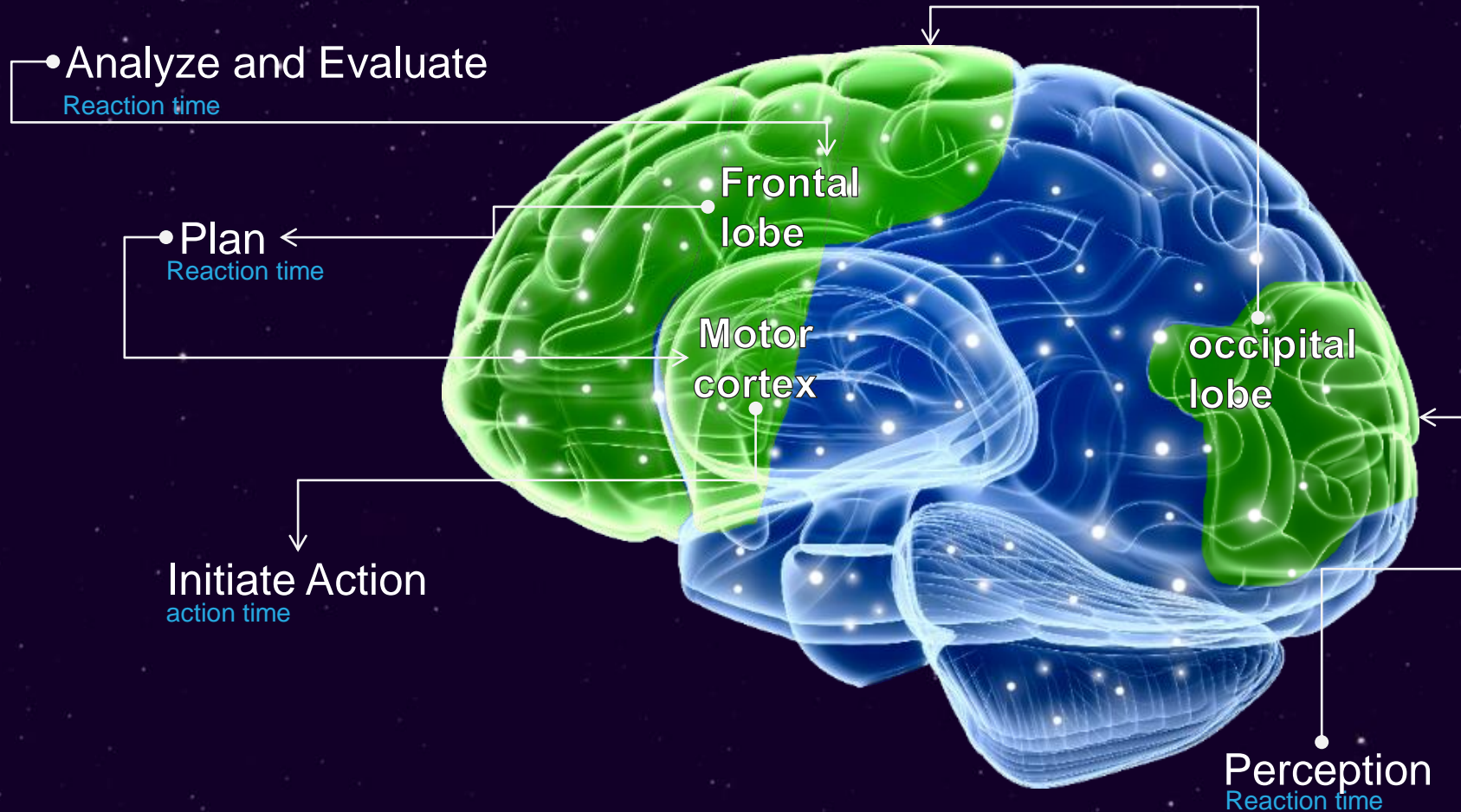
Call Detail Records

| LATITUDE | LONGITUDE | DATE | TIME | NUMBER | NAME | DURATION |
|-----------|-----------|----------|------|--------------|--------------------|----------|
| 44.5880 N | 73.3823 W | 1/7/2008 | 0917 | 800-555-1234 | Chrysler Bank | 0:10:17 |
| 44.5880 N | 73.3823 W | 1/7/2008 | 0942 | 800-555-8873 | Poquos LaFue | 0:01:03 |
| 44.5880 N | 73.3823 W | 1/7/2008 | 0945 | 800-555-9201 | Harley Strappman | 0:06:52 |
| 44.2783 N | 73.2124 W | 1/7/2008 | 2205 | 800-555-7758 | Verizon Voice Mail | 0:01:13 |
| 44.2783 N | 73.2124 W | 1/7/2008 | 1532 | 800-555-4992 | Wiglets LLC | 0:03:47 |
| 44.2783 N | 73.2124 W | 1/7/2008 | 2209 | 800-555-7758 | Verizon Voice Mail | 0:00:56 |
| 44.5880 N | 73.3823 W | 1/7/2008 | 0830 | 202-455-1818 | British Embassy | 0:18:12 |
| 44.2783 N | 73.2124 W | 1/7/2008 | 2208 | 800-555-7758 | Verizon Voice Mail | 0:00:53 |
| 44.2783 N | 73.2124 W | 1/7/2008 | 2211 | 800-555-8873 | Poquos LaFue | 0:06:18 |
| 44.5880 N | 73.3823 W | 1/7/2008 | 0923 | 202-455-1843 | British Embassy | 0:03:21 |
| 44.5880 N | 73.3823 W | 1/7/2008 | 0928 | 414-455-9814 | British Embassy | 0:22:04 |
| 44.4143 N | 73.0546 W | 1/7/2008 | 1047 | 800-555-0201 | Harley Strappman | 0:01:02 |
| 44.4143 N | 73.0546 W | 1/7/2008 | 1050 | 213-555-2761 | M. Fenick | 0:00:06 |
| 44.2595 N | 73.5823 W | 1/7/2008 | 1127 | 800-555-9201 | Harley Strappman | 0:05:18 |



LEARNING ARTIFICIAL BRAIN

$$\text{Reaction time} + \text{Action time} = \text{Response time}$$



FROM HUMAN BRAIN TO DEEP LEARNING

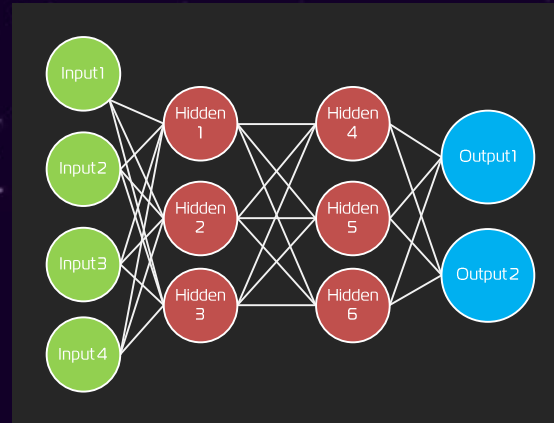
Artificial Intelligence



Computers and software that are capable of intelligent behavior



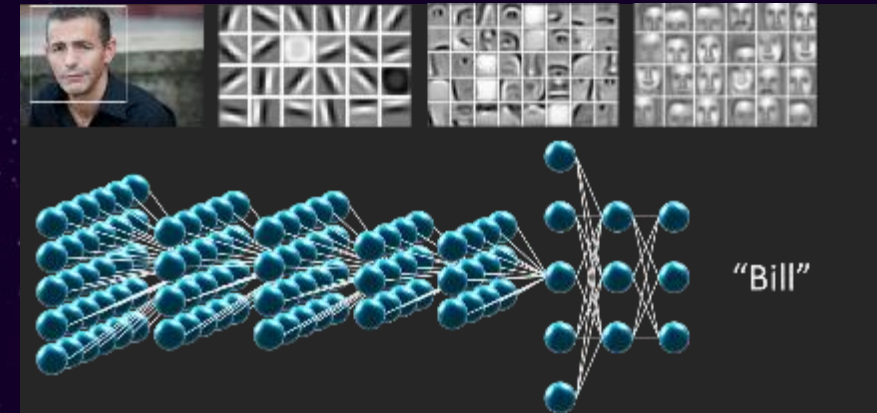
Machine Learning



Ability to learn without being explicitly programmed

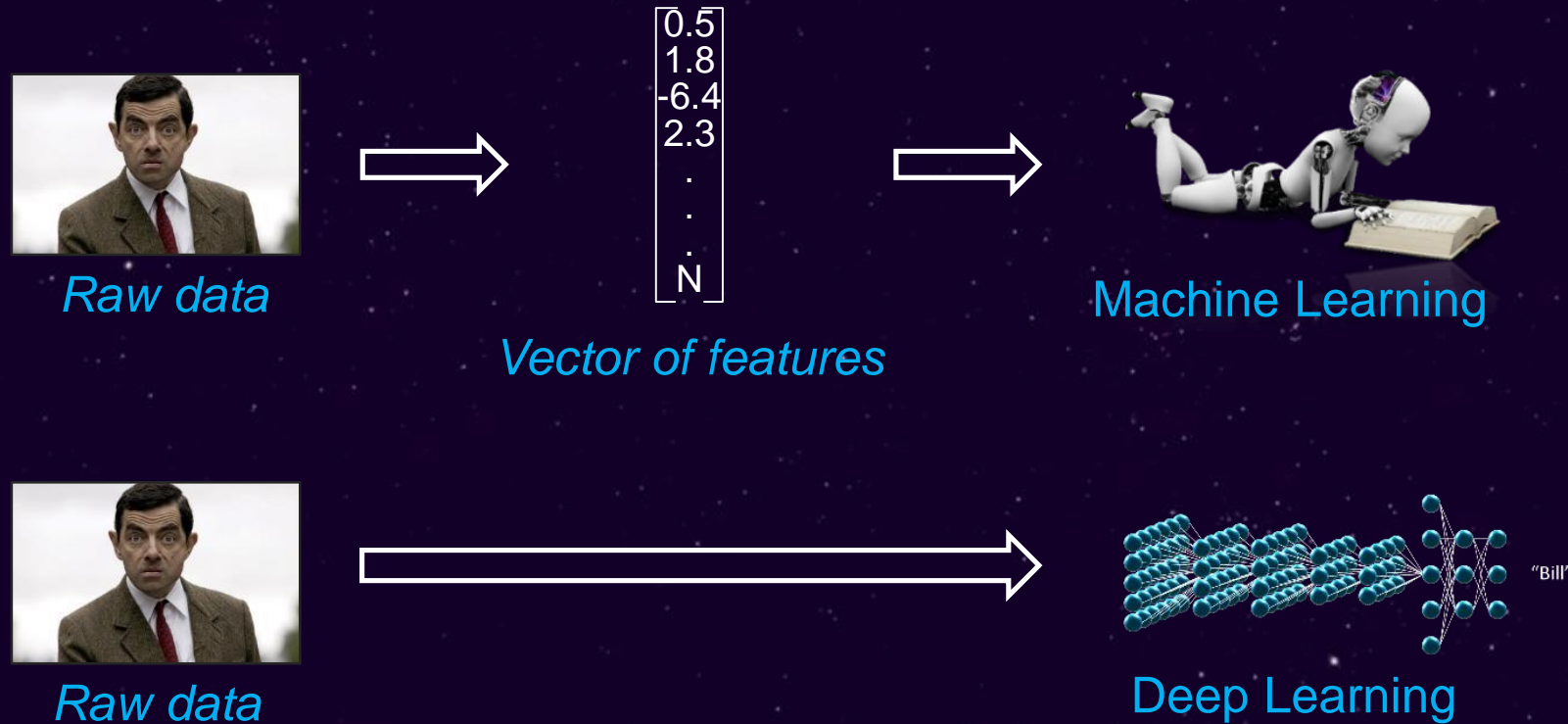


Deep Learning



Learning multiple levels of representation and abstraction that makes sense of data and removes all manual steps

MACHINE LEARNING VS. DEEP LEARNING

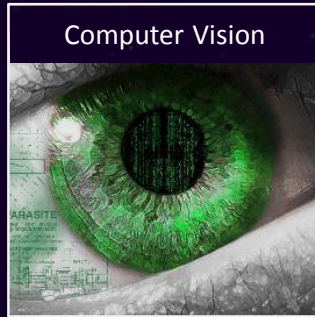


Deep learning enables to skip the features selection phase, taking into account:

- ALL available features
- Non linear correlations

RESULTS OBTAINED BY DEEP LEARNING IN OTHER DOMAINS

Applying deep learning to some of the most challenging domains resulted in a leap frog in performance without any specific domain expertise



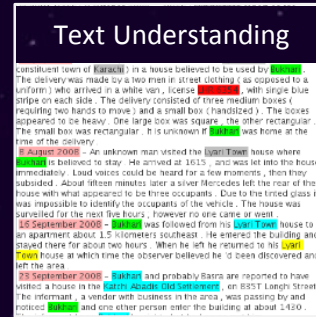
Computer Vision

20%-30% improvement



Speech Recognition

20%-30% improvement



Text Understanding

10%-20% improvement



"man in black shirt is playing guitar."



"construction worker in orange safety vest is working on road."



"two young girls are playing with lego toy."



"girl in pink dress is jumping in air."



"black and white dog jumps over bar."



"young girl in pink shirt is swinging on swing."

DEEP LEARNING BARRIER OF ENTRY

Google

facebook

Baidu 百度

IBM

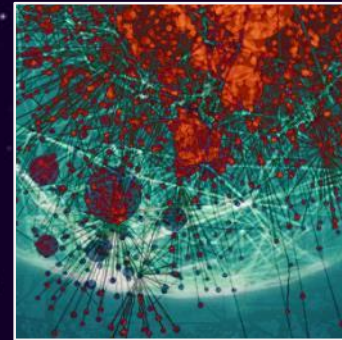
Microsoft



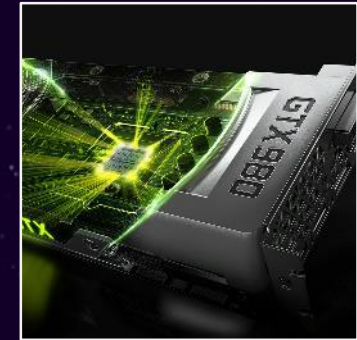
A family of tens of algorithms



Complex to understand



Difficult to implement



Re-Implement on GPU (100x faster)

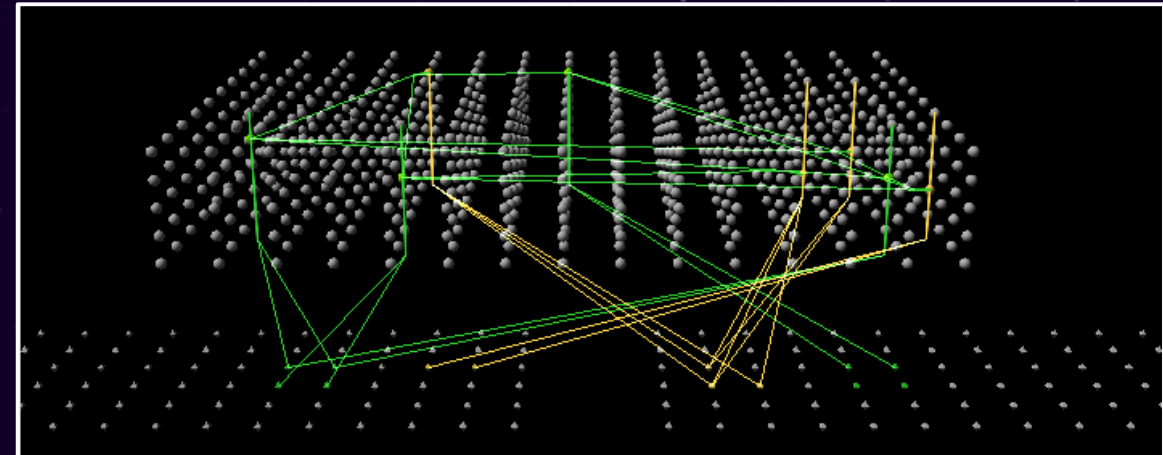
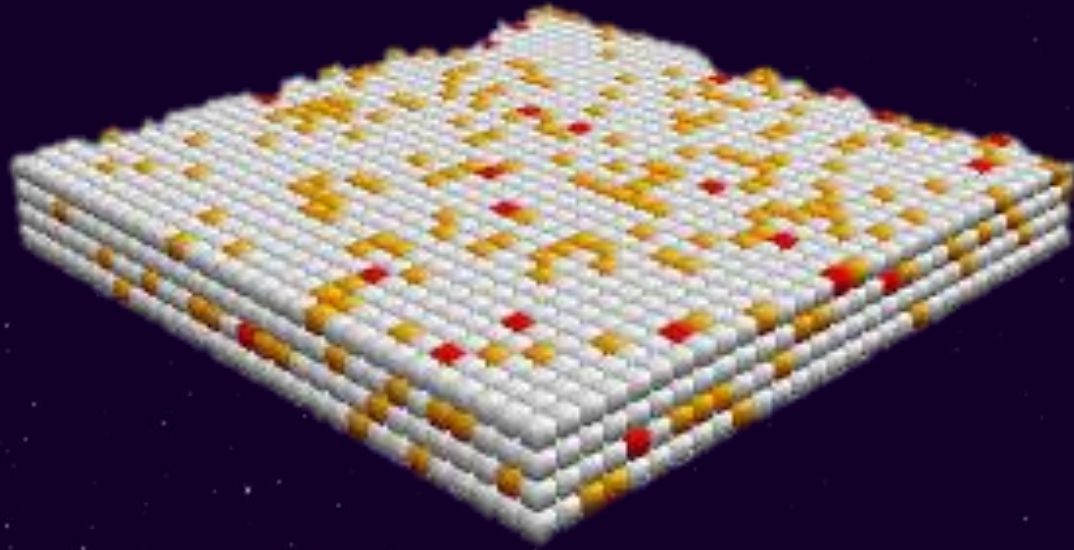


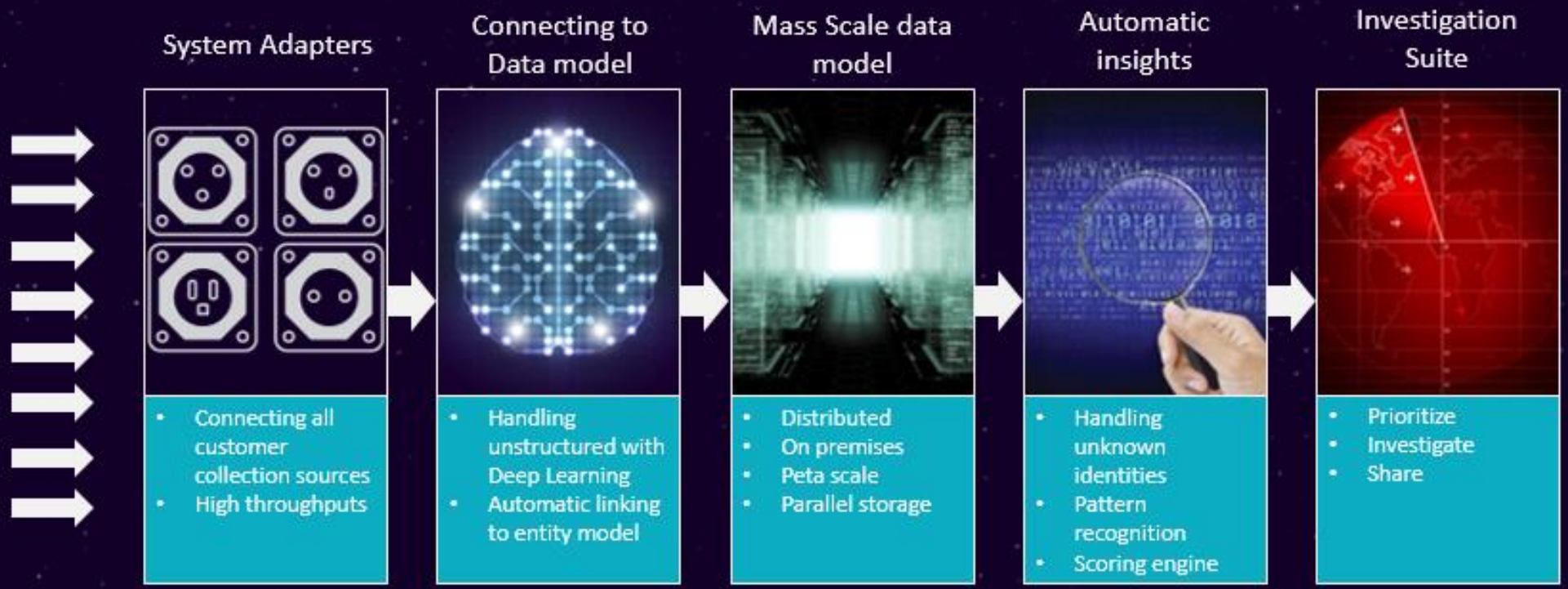
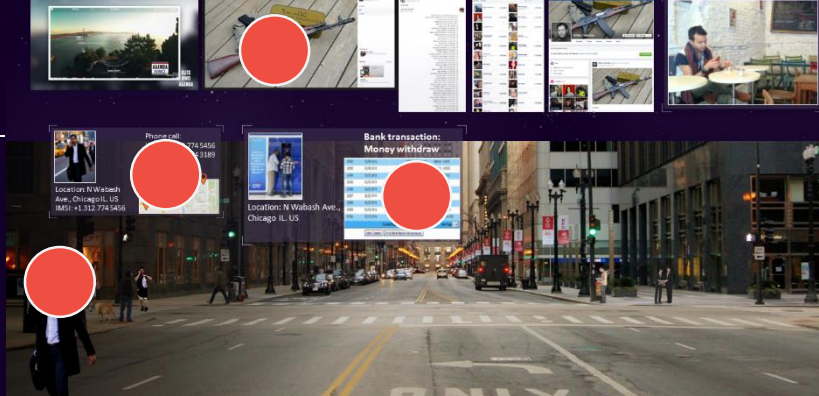
Google DeepMind



HTM - COGNITIVE MODEL

- Unique **pattern recognition** and **anomaly detection** abilities
- Hierarchical model optimized for temporal data
- Robust under **noisy / missing data**





INTEGRATE ALL SOURCES TO ONE PLATFORM

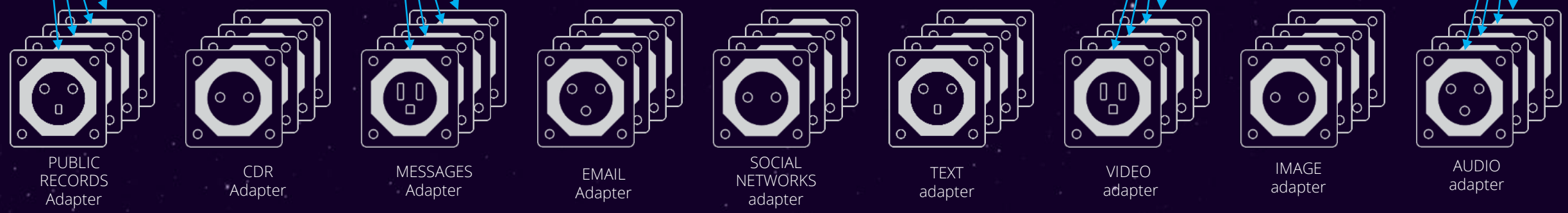
Customer sources



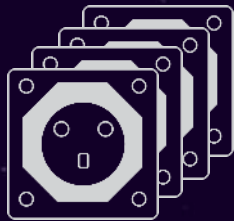
Data types



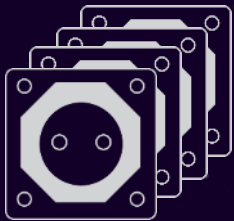
System - Data format adapters



INTEGRATE ALL SOURCES TO ONE PLATFORM



PUBLIC RECORDS Adapter



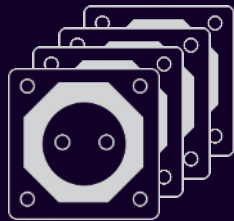
CDR Adapter



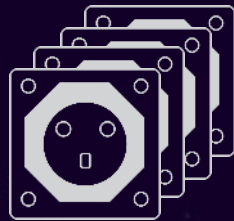
MESSAGES Adapter



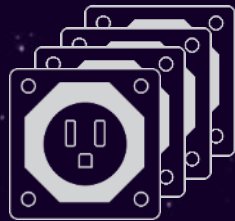
EMAIL Adapter



SOCIAL NETWORKS adapter



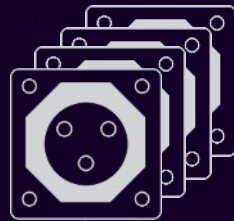
TEXT



VIDEO ANALYSIS

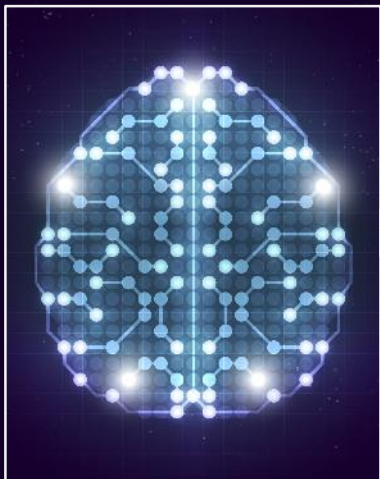


IMAGE

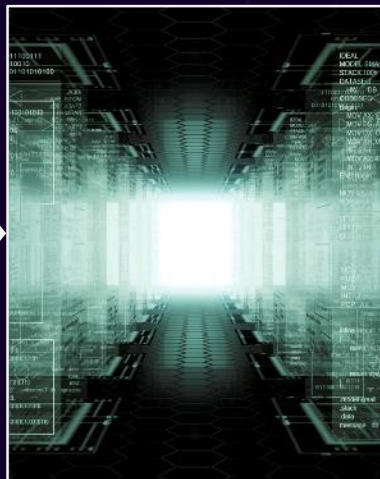


AUDIO

Connecting to Data model



Mass Scale data model



Automatic insights

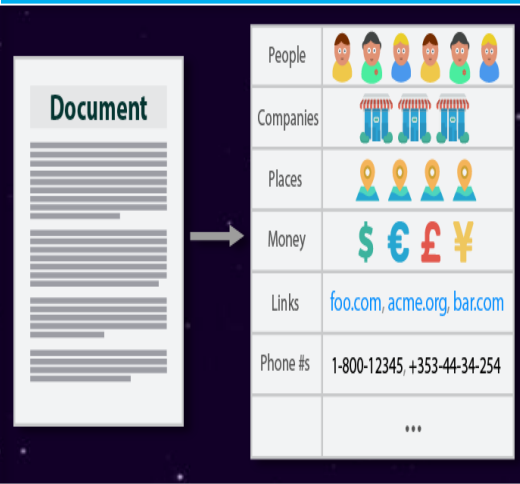


Investigation Suite



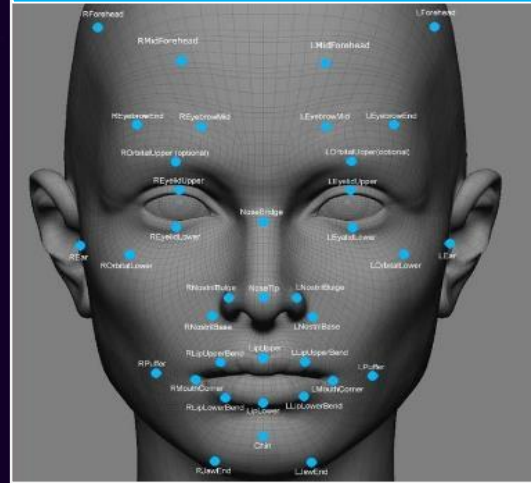
HANDLING UNSTRUCTURED WITH DEEP LEARNING

Text



- Text Entity Extraction
- Textual similarity
- Language ID*
- Auto translation*

Image



- Face Recognition
- Image classification*
- OCR*
- Location recognition*

Audio



- Speaker Diarization
- Speaker Recognition
- Voice to Text*

Video*



- Face recognition
- Motion detection
- Object tracking
- Abnormal behavior

Unstructured data is ~80% of all available data

UNSUPERVISED DEEP LEARNING CORRELATION

FACE RECOGNITION

VIDEO ANALYSIS

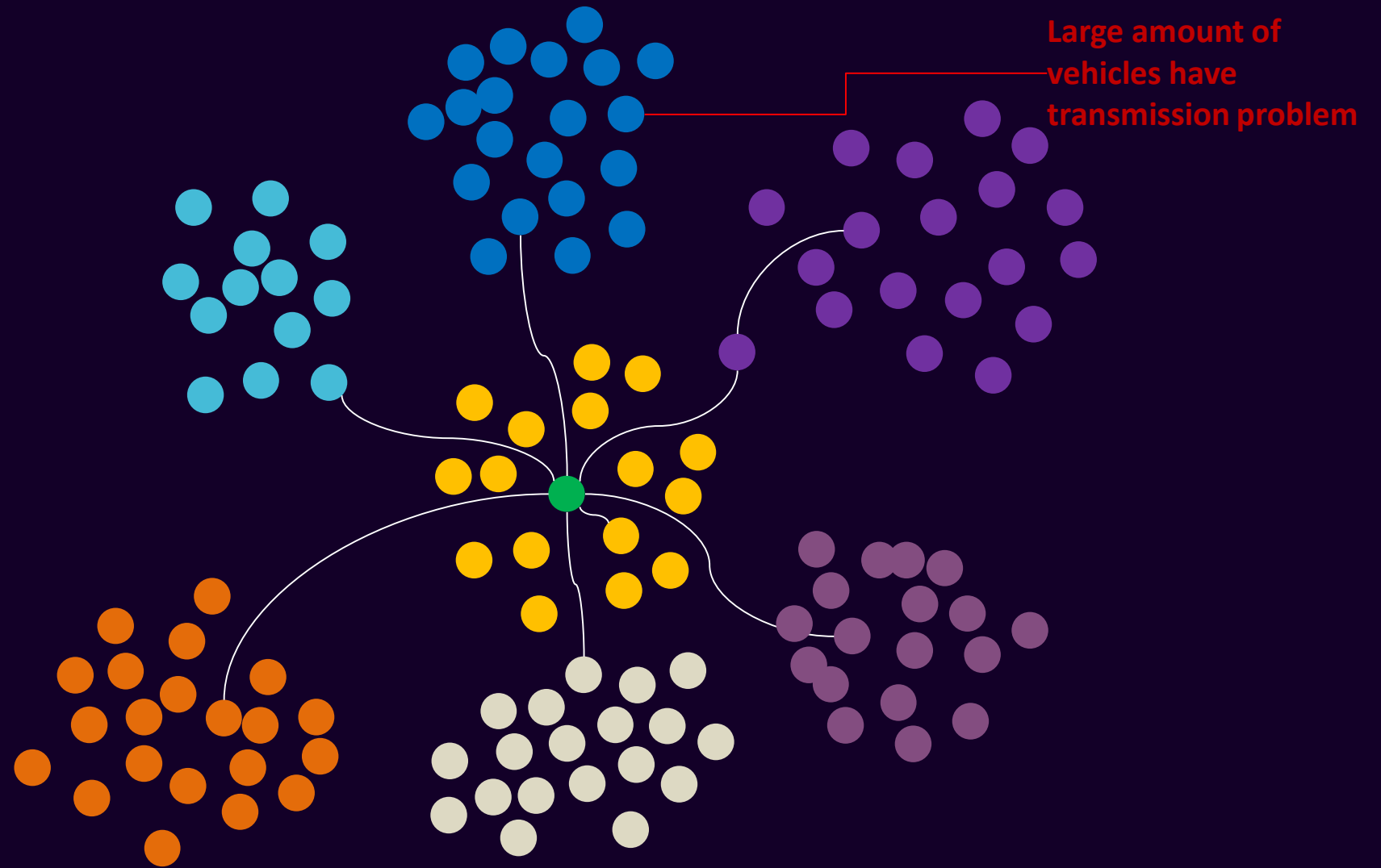
VOICE RECOGNITION

ENTITY EXTRACTION

TEXT ANALYSIS

PATTERN RECOGNITION

ANOMALY DETECTION



DEEP LEARNING ANALYTICS OF ANY TEXT SOURCE

Shift-click to make that word the root.

■ TEXT SIMILARITY

■ TEXT RECOMMENDATION

■ SENTIMENT TEXT

■ TOPIC IDENTIFICATION

■ REAL-TIME SCORING OF DATA RECORD

■ ENTITY EXTRACTION

■ BASED ON RECENT IMPROVEMENT, ALLOWS

■ LANGUAGE AGNOSTIC ENTITY EXTRACTION

■ LANGUAGE AGNOSTIC TRANSLATION

■ TEXT ATTRIBUTION TO ENTITIES

server
client

Symmetric Key Lifecycle Profile Version 1.0
) TC
clients
Baseline

SHALL support the following

with

value: i

and

1

v1.

1

v1.

1

1.

Cross Reference



] Symmetric Key [KMIP-SPEC]

Key Format Type [KMIP-SPEC]

SHALL support the following

Attributes [KMIP-SPEC]

Cryptographic Algorithm [

KMIP-SPEC] Object Type [KMIP

-SPEC] Process Start Date [

KMIP-SPEC] Protect Stop Date

[KMIP-SPEC] SHALL support

the following Client-to-

Server [KMIP-SPEC]

operations: Create [KMIP-

SPEC] SHALL support the

following Message Encoding [

KMIP-SPEC]: Cryptographic

Algorithm [KMIP-SPEC]with

values:

i. 3DES

ii. AES

Object Type [KMIP-SPEC] with
value:

i. Symmetric Key

Key Format Type [KMIP-SPEC]
with value:

i. Raw

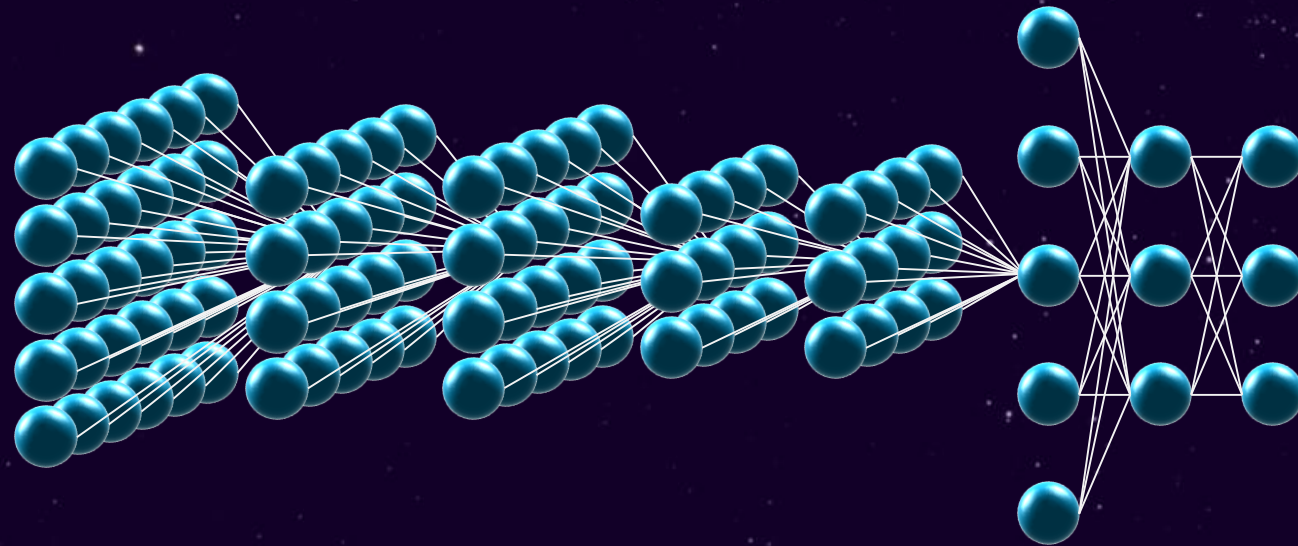
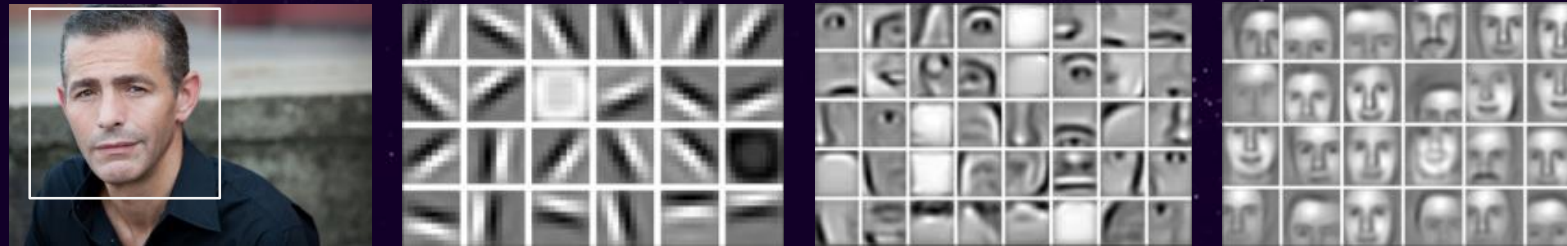
ii. Transparent Symmetric
Key

SHALL support all Mandatory
Test Cases, returning
results in accordance with

DEEP LEARNING IMAGE FACE RECOGNITION

Deep Learning face recognition acts like the human brain.

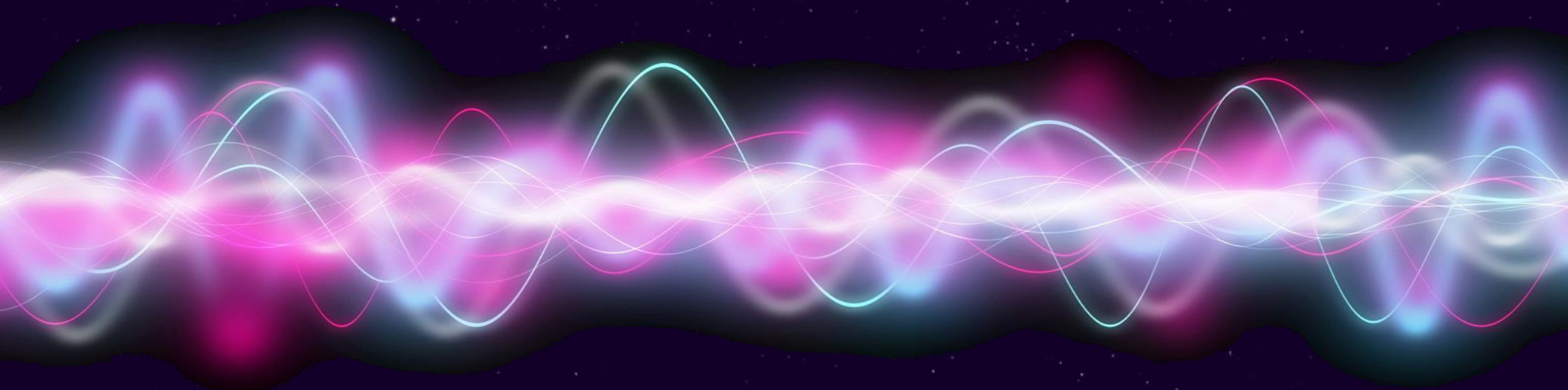
- Limitations of *old methods are canceled out*.
- Agnostic to head angle, light conditions, quality etc...



“Bill”

WHAT IS **VOICE** RECOGNITION?

Speaker Recognition is a biometric application that uses digital automated analysis of voice to classify several features.



CDR ANALYSIS

CDR BASIC

- Call Log Analysis
- List of Object's
- Report on a Phone base
- Suspicious phones

| | | | | | | | |
|------------------------------|---------|----------|---------------|------------------------------|---------|------------------|--------------|
| sandrine ST SOUPLPLETS 77165 | VOICE-O | 00:00:11 | 2082000FB5A8C | 27 rue mathis LES PAVILLO... | | | 3591030 |
| VANVES 92170 | VOICE-O | 00:00:04 | 2082000BBSEBF | | | | 3591030 |
| sandrine ST SOUPLPLETS 77165 | VOICE-O | 00:00:14 | 2082000FB5A8F | 27 rue mathis LES PAVILLO... | | | 3591030 |
| le thomas PARIS 20EME 75020 | VOICE-I | 00:00:26 | 2082000FB9E11 | 82 rue philippe LIVRY-GAR... | | | 3591030 |
| le thomas PARIS 20EME 75020 | VOICE-O | 00:00:20 | 2082000FB669F | 7 rue tom BONDY 93140 | | | 3591030 |
| francoise ECOUEN 95440 | VOICE-O | 00:00:25 | 2082000BBSEBB | 64 avenue nathan VILLEM... | | | 3591030 |
| eva GRESSEY 78550 | VOICE-O | 00:00:04 | 2082000BBSEBB | 64 avenue nathan VILLEM... | | | 3591030 |
| francoise ECOUEN 95440 | VOICE-O | 00:00:14 | 2082000BBSEBB | 64 avenue nathan VILLEM... | | | 3591030 |
| | VOICE-O | 00:01:24 | 2082000FB6637 | 69 avenue brigitte BONDY ... | | | 3591030 |
| | SMS-I | | 2082000FB6634 | 69 avenue brigitte BONDY ... | 0 bytes | | 3591030 |
| s PARIS 1ER 75001 | VOICE-O | 00:00:42 | 2082000C29EBE | 23 rue alain PARIS-19E--A... | | | 3591030 |
| sandrine ST SOUPLPLETS 77165 | VOICE-O | 00:00:12 | 2082000C29005 | 16 avenue patrick PARIS-2... | | | 3591030 |
| sandrine ST SOUPLPLETS 77165 | VOICE-I | 00:00:14 | 2082000C26827 | 13 avenue alexandre PARI... | | | 3591030 |
| sandrine ST SOUPLPLETS 77165 | VOICE-I | 00:00:03 | | | | 33 6 60 88 66 06 | N° TECHNIQUE |
| sandrine ST SOUPLPLETS 77165 | VMAIL-I | 00:00:03 | | | | 33 6 60 88 66 06 | N° TECHNIQUE |
| sandrine ST SOUPLPLETS 77165 | VOICE-O | 00:00:06 | 2082000FB6634 | 69 avenue brigitte BONDY ... | | | 3591030 |
| sandrine ST SOUPLPLETS 77165 | VOICE-I | 00:00:15 | 2082000FB6631 | 69 avenue brigitte BONDY ... | | | 3591030 |

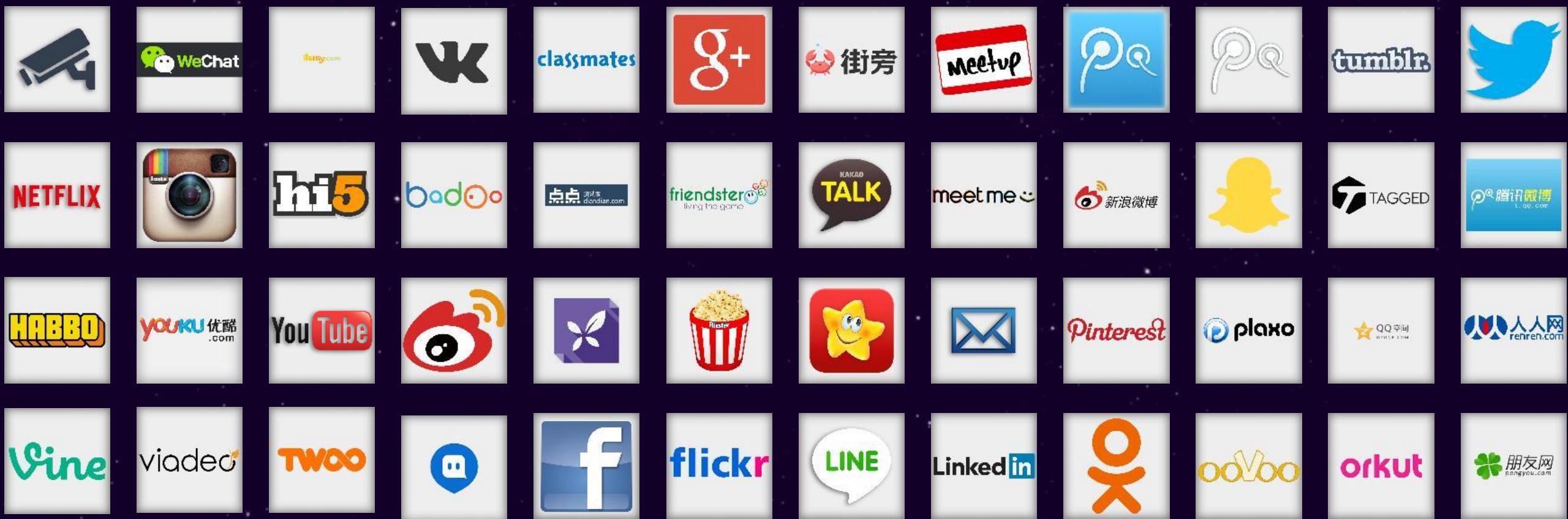
CDR ADVANCED

- Location, patterns and usage
- Link Analysis between people
- Identity matching & Fake Identity Recognition
- Usage of pre-paid phones
- A suspect replaces the phone – identify suspect by behavior

CDR DEEP

- “Echo Chamber” – an isolated network of phones
- Future Geo Location predication of target's
- Identify potential interesting unknown targets
- Cellular pattern: someone talks to someone else near events that happen

GAINING INTELLIGENCE FROM SOCIAL MEDIA & IP WITH DL



SOCIAL MEDIA & IP

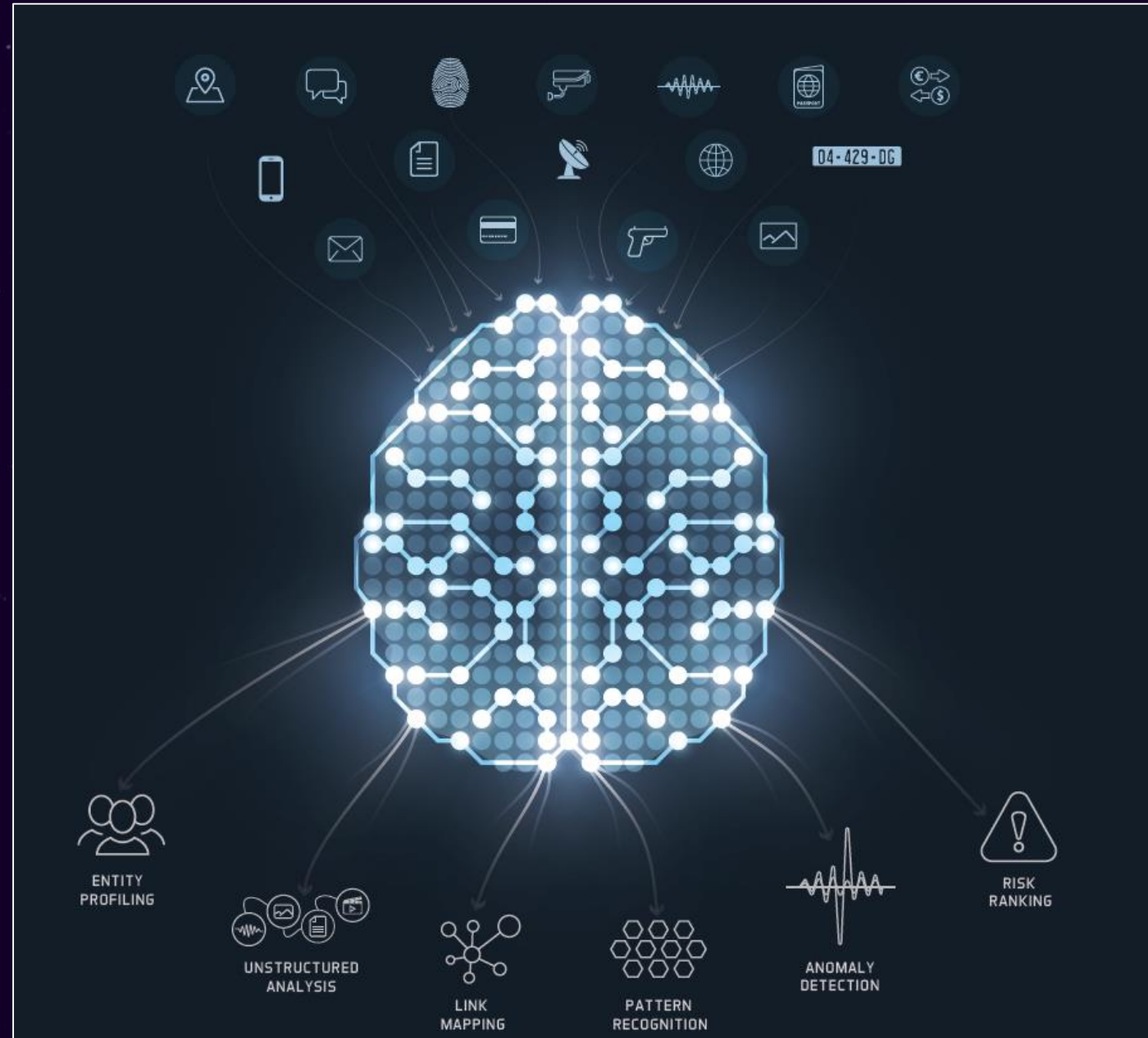
Identify multiple Social Media profile related to the same person

IPDRs correlated with social media traffic to correlate account with a device

GPS coordinates from mobile apps are correlated with social media locations

Alert when a person stopped using his account and switched to other account

Find new radical profiles according to objects



DEEP LEARNING OBJECT EXTRACTION & RECOGNITION

