

**OPEN DISCUSSION**  
**A Digital Anatomy of**  
**Robotkind and Humankind**  
**Coexisting Society**

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<http://www.iaria.org/fellows/PetreDini.pdf>

# Petre

- (partially) **retired** | (mostly) **volunteering** | enjoying (affordable) **traveling**
- **Past topics**: mathematics, VLSI, formal languages, protocol V&V, real-time embedded systems, nomadic code, active routing, software arch, (AT&T) IMS, (Cisco) IOS, Fault Mgr, Performance Mgr, ...Data, Learning,.....
- **Academics**: U de Montreal, Concordia U, McGill U | (AT&T) Stanford, (Cisco) Berkeley, China Space Agency Center - Beijing | Cisco-IBM Coop Dir., AT&T-Cisco Coop. Dir.
- **Industrial/research**: BNR (Nortel R&D), CRIM (R&D), AT&T, Cisco Systems, Inc.
- **Salient**: 19 US Cisco patents, (co)supervisor: 38 Master&PhD
- **Current hobbies**: self-x, systems/apps adaptation, conflicts in decision policies, crowd-in-the-middle, reflective architectures, new trends in software development (apps)
- **Open**: how can a piece of software can realize by itself (or by any other means) that a copy of that piece was (? illegally) made somewhere [[see CLOUD](#)]
- **Still learning ...from you!**
- **Yet, playing**: 4 grandkids, my neighbors

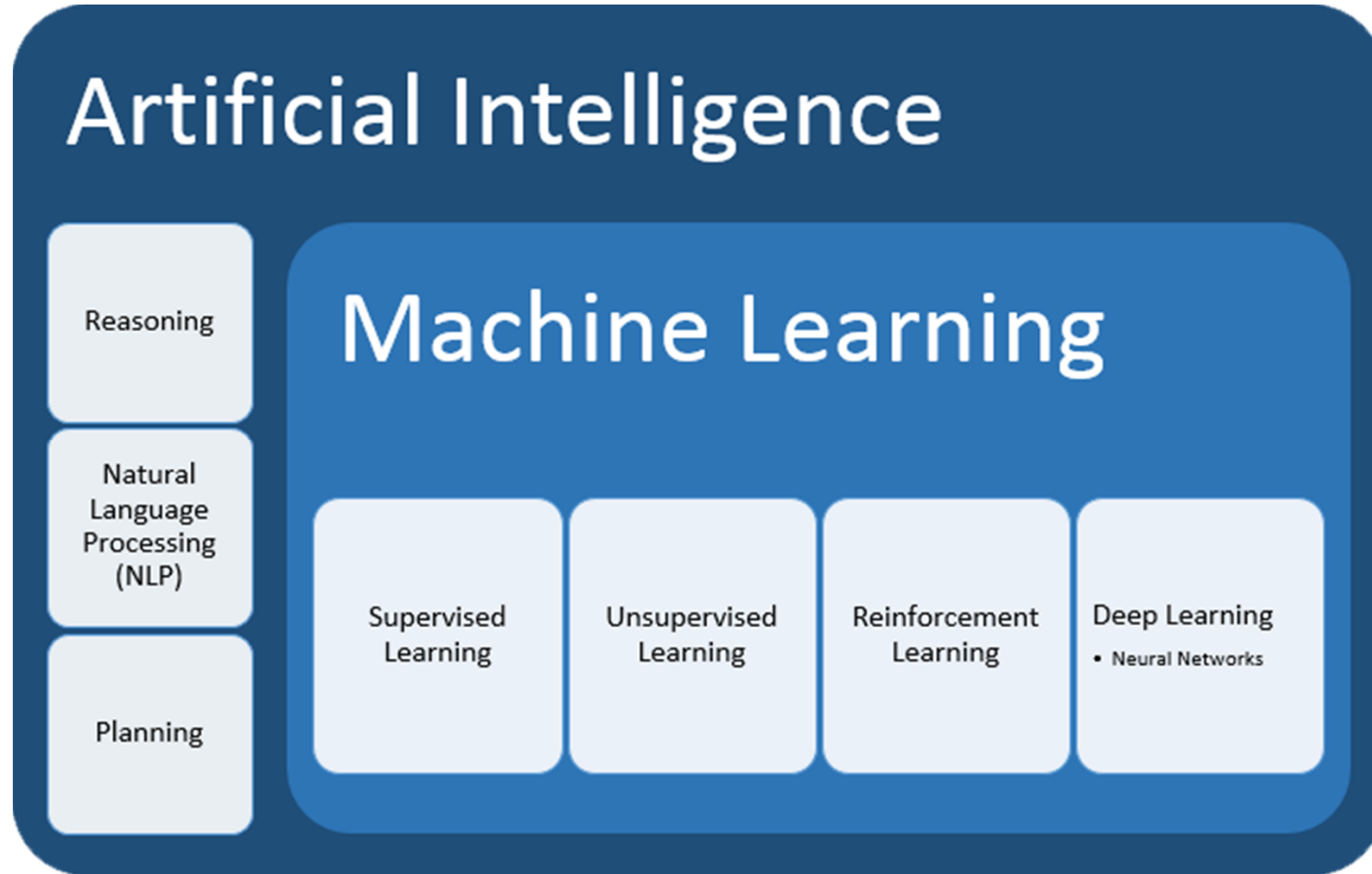
# Keywords Invasion

- Machine Learning
  - Deep Learning (Neuronal Networks, Sandwich, etc.)
  - Data Visualization (Uni-, Multi-variables, Links)
  - Semantic Gap/Semantic Matching
  - Ontologies/Taxonomies
  - Prediction/Intuition/Data Analytics/Data Science
  - Advanced Artificial Intelligence
  - Accelerated Deep Learning/Deep Thinking
  - Data Orchestration (open data, data sets, visible/hidden links)
- ➔
- Brain-Like computing (*neuromorphic computing* mimics the brain's structure)
  - Intelligent-Analysis-as-a-Service
  - Prediction-as-a-Service
  - Data Science
  - Cognitive
  - Robots-at -large

# Preamble

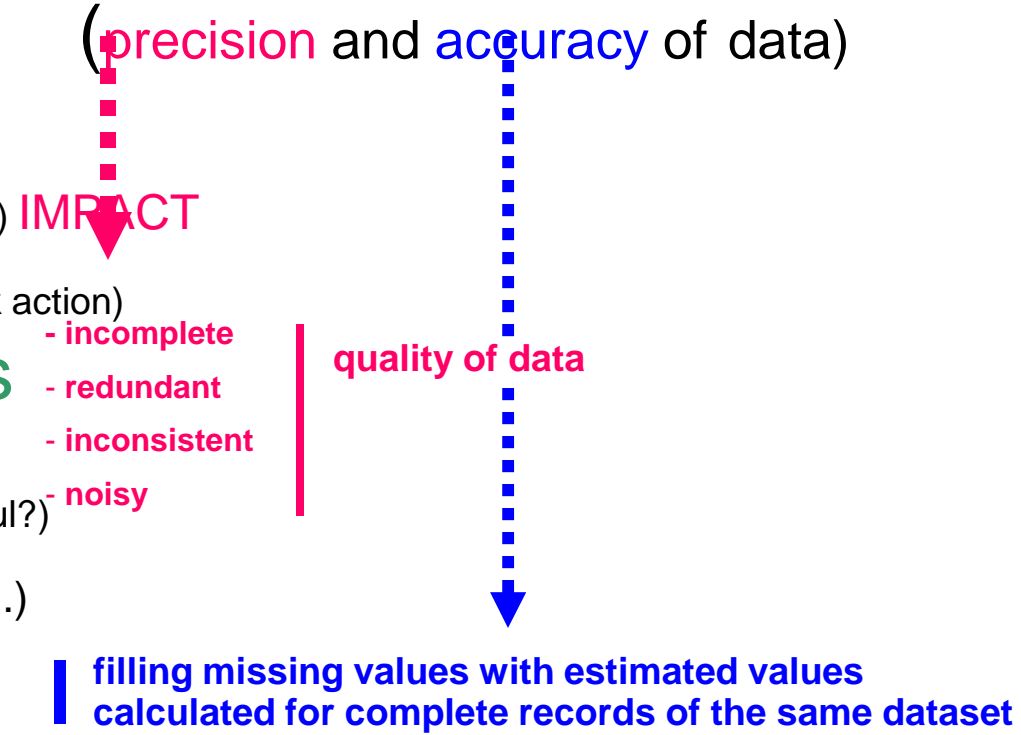
- Data
- Machine Learning
- Cognitive X

# Data and Learning



credit: <https://www.ibm.com/analytics/machine-learning>

# BIG | the Vs | 3v, 5v, 7v, 10v, .... ?

- **Volume** (length of a records, # of records) (entity-relationship databases)(datasets) || **BIG vs. HUGE**
  - **Variety** (types: strings, pictures, voice, etc.) (structured, non-structured)
  - **Veracity** (precision and accuracy of data)
  - **Velocity** (of change)
  - **Value** (as a business/service) **IMPACT**
  - **Volatility** (temporary; quick action)
  - **Vasting resources** (storage, computation, transfer)
    - incomplete
    - redundant
    - inconsistent
  - **Viability** (are data still useful?)
    - noisy
  - **Visibility** (open, hidden, ..)
  - **Validity** (are there still valid/updated data?) (in context validity) (e-government datasets)
    - filling missing values with estimated values calculated for complete records of the same dataset
- 

# List of themes under discussion

- Towards robotics/evaluation scale of evolution speed
- Healthcare
- Food/agriculture/lifestok
- Vehicular advances
- Drones dynasty
- Mobility-as-a-Service
- Optimizations-at-large
- Societal issues/technology
- Social issues/society
- Information/knowledge issues
- Humans and Robots co-existing Future Society

# Towards robotics/evaluation scale of evolution speed

- Is Humanity an obsolete term?
- Is Robomanity a more accurate one?
- Or, is the Digital Society a better fit?
- Definitively, Future has Already Happened.
- Technology absorption: Logarithmic scale in the past (slow speed) vs. anti-Logarithmic scales (high speed)
- See: <http://www.bbc.com/future/story/20190207-technology-in-deep-time-how-it-evolves-alongside-us> (DeepTime)
- When equating 4.7 billions of years ~ one day (24 hours), then, everything technologically, was developed in the last 5/1000 of the last second.



## ...Days ago, or so

- Humanoid Robot Sofia, got citizenship
- Robots are encouraging feminine students to explore careers in robotics and coding
- Robots handle almost all Police station services
- Robots playing with or storytelling to babies

# Healthcare

- remote surgeries
- nano surgeries
- robot-based surgeries
- advanced scans
- elderly dedicated-systems (alarms, home care self-management, etc.)
- disability/handicap interfaces | cognitive interfaces

# Food/agriculture/Lifestok

- artificial/raised meat
- medical meat/eggs
- order/delivery technologies/approaches
- digital agriculture | coordinating activities | sensing
- digital marine monitoring | special sensing | stock monitoring, flocks watching
- WildTrack (SAS)
- digital livestock | breeding | surveillance
- drone-based agriculture
- robot-fed livestock

# Vehicular advances

- self- | cognitive
- electric
- pedestrian services for disabled
- legal aspects
- insurance aspects
- industry re-direction aspects, Industry 4.0 / IIoT

# Drones dynasty

- home surveillance
- delivery
- dangerous missions | rescues
- underground/mines
- utility services | windows cleaning
- army-surveillance
- taxi-drone
- territorial images

# Mobility-as-a-Service

- change in ownership attitude
- cars-by-request
- house architecture change
- new car rental-on-request services
- driver-by-request
- taxi-by-request | bicycles
- self-controlling ferries

# Optimizations at-large

- parking lots | parking robots
- police information | robots-based kiosks
- domotics | house energy consumption optimization
- remote gas/electricity metrics/payments
- intelligent clothes | tiny embedded sensors

# Societal issues/technology

- pollution
- stress | too much | 360 degrees
- remote working | less traffic | more work
- nanophobia | negative (implicit) side effects
- garbage collection (smarphones, etc.)
- space garbage collection | net of flying satellite pieces
- smog | industrial dust
- body-chip payment tools [Sweden]



# Social issues/society

- anonymity vs. responsibility vs. e-punishment
- online voting
- social/virtual communities | pros/cons | education for thinking
- ☹️ fork-equipped smartphones
- yet, forgotten communities | no energy | no Internet connection
- wearable/implantable devices
- Digital Wellbeing [Google]
- News garbage collection

# Information/knowledge/cognition issues

- remote learning | missing the classes | smart blackboards
- remote working | aloofness
- zero-knowledge systems | rules vs. self-learning
- AlphaGo-Zero, DeepMind
- DeepLearning | 'new-AI' | machine learning
- forecasting models

# Humans and Robots co-existing Future Society

- human languages and robot languages
- surgeries
- space exploration
- self-teaching robot skating
- digital localization | pros/cons
- children and robots
- disables and robots (profound motor impairments)
- mission critical uses

# Already...

- Drone services: delivery, implants, government documents; FedEx,...
- Taxi drones
- Pollination
- Judge robots
- Agriculture at large

# One application - babies

- dangerous: before a given age
- some answers to the 'robot name'... as being the most heard in the crib room
  
- dangers of 'digital assistants'
- perfect pronunciation vs. mother-like caressing pronunciation biased learning, as associations are not longer traditional biased feeling/touching, as robot arms are not as mother-hands biased recognition and face grimaces / body languages favoring foreign language learning
- discharging patents of tiring routines
  
- baby cribs
- rocking – autonomous systems
- cognitive rocking
- cognitive lullaby (calming, plying personalized relaxing music, bany songs,...)
- embracing, rocking, and singing

# To consider

- Robot empathy
- Ethical issues
  - social care, elderly
  - companion
  - hospital transportation
  - surgeries
- Robots rights (e.g., military robots)

# AI, AI, AI

- **AI Algorithm that alter criminal records**

(An algorithm which speeds up the process of removing eligible marijuana convictions from people's criminal records in California has been developed.)

- **The AI clearing conviction backlogs**

# Next....., almost here

- Robot for job's interview  
<https://www.bbc.com/news/business-47442953>
- Marketing spots  
<https://factorychain.com/marketing-robot/>
- Advertising robots  
<https://www.fastcompany.com/1681432/in-the-future-advertising-for-robots-will-probably-look-like-this>
- Gender neutral answering robots  
<https://www.wired.com/story/the-genderless-digital-voice-the-world-needs-right-now/>