



Reflections on the Arab League Dialogue and the Future of AI in the Arab Region

Tarek Elabbady, PhD

Founder and CEO

InspireNext30, (IN30)

<http://www.inspirenext30.com>



Outline

- Key Elements of Artificial Intelligence
- A short history of the evolution of AI
- Summary of Digital Transformation in Various Sectors
- Potential Risks of AI for Humanity
- AI Engagements in International Organizations
- Call to Action: Opportunities for the Arab Region in AI

من يقبل التغيير يخطو نحو العُلا
فهو صاحب الحكمة قد سبق الألى

قد تأتي الذكاءات لتحلّ محلّ العقول
والروبوتات تأخذ مكان العضلات بلا فِصول

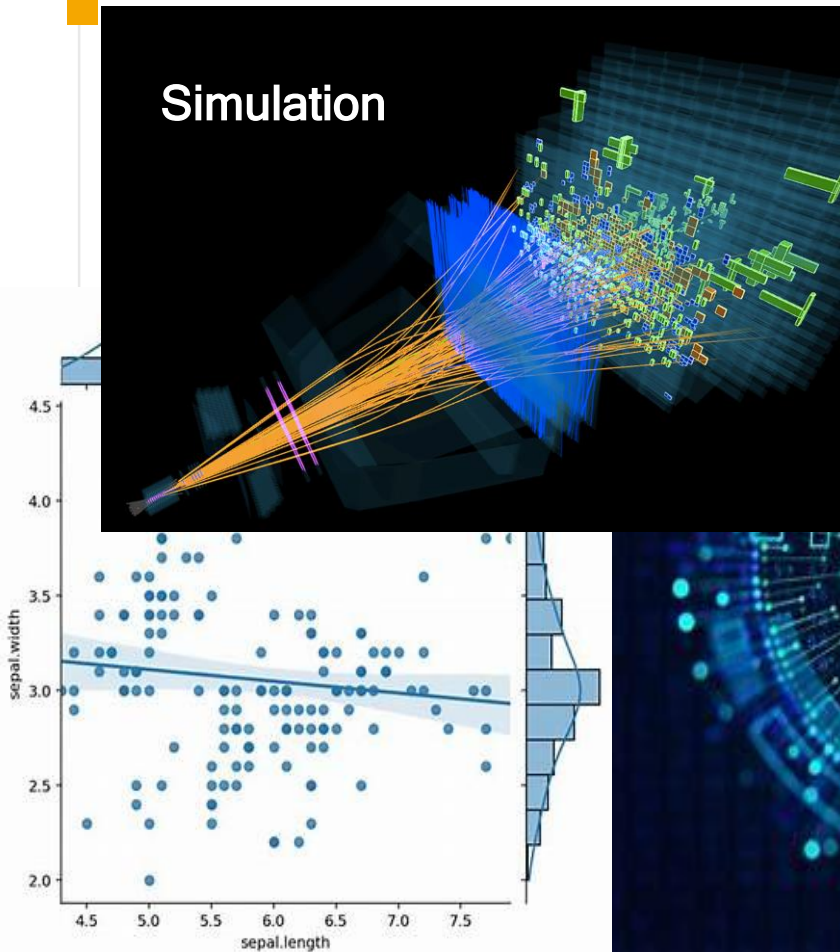
لكن الإنسان يظل دائماً ببصيرته
بقلبه النابض يغمر الكل بحنانه

التكنولوجيا قد تسيطر على الزمان
لكن القلوب تبقى حرة لا تعرف الألوان

فالعواطف هي سر البقاء والخلود
والإنسان بروحه يسمو على كل الحدود

AI Fundamental

Simulation



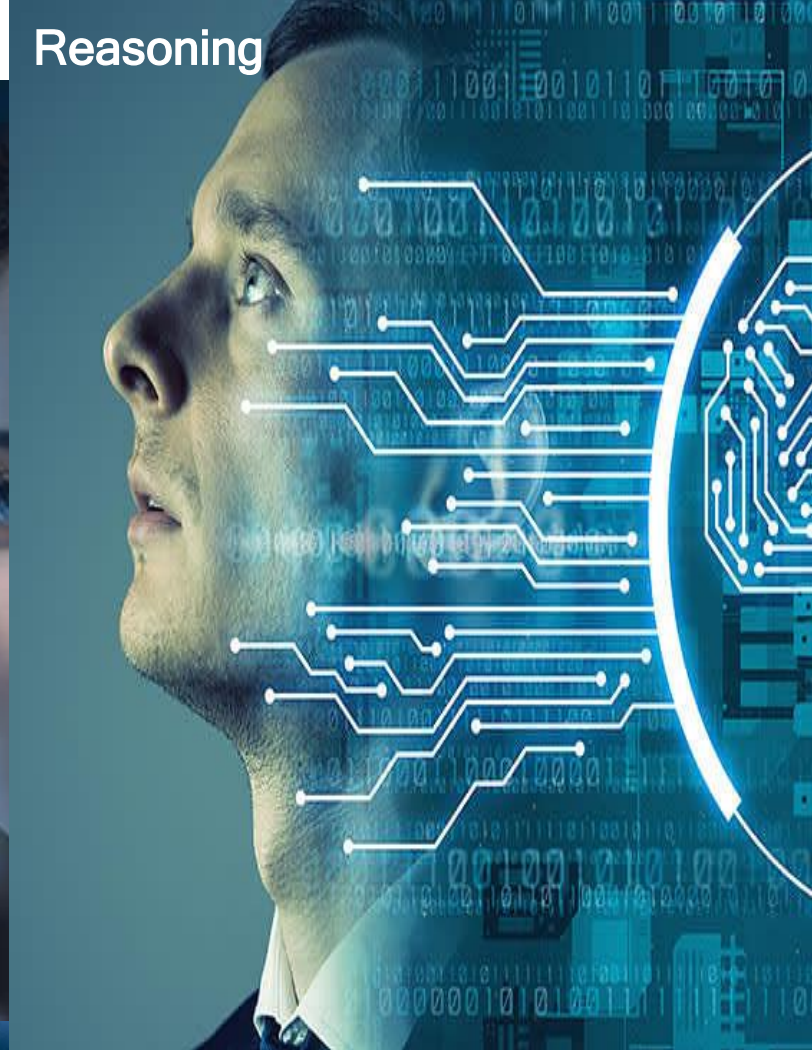
Prediction



Recognition



Reasoning



The Arab Region Opportunity

Talent Relevancy

Mathematics / Data Science

Agentic Skilling / Domain Knowledge



- Utilize the economic potential of 450 million Arabic speakers.
- Strategically develop, promote, and protect pan-Arabia data assets
- Enhance digital presence through mobile apps, digital identities, fintech, eHealth, and eLearning solutions.
- Explore the Arab League Digital Certificate.



- AAA: Align, Adhere and Actively participate in international organizations standards and policies (EU, UN, Asia..)

- Advocate for specialization at the national level, within academic institutions, and throughout the ecosystem.

- Align the Investment strategies for Data Centers across Arabia
 - Optimize for latency and energy consumption.
 - Stop the race among wealthy countries



INTRODUCTION TO PARALLEL COMPUTING

1991 - 2000

- Neural Networks
- Parallel Computing (MPIs)
- Large-Scale Optimization

Computer Modeling of MRI Systems (1992-5)

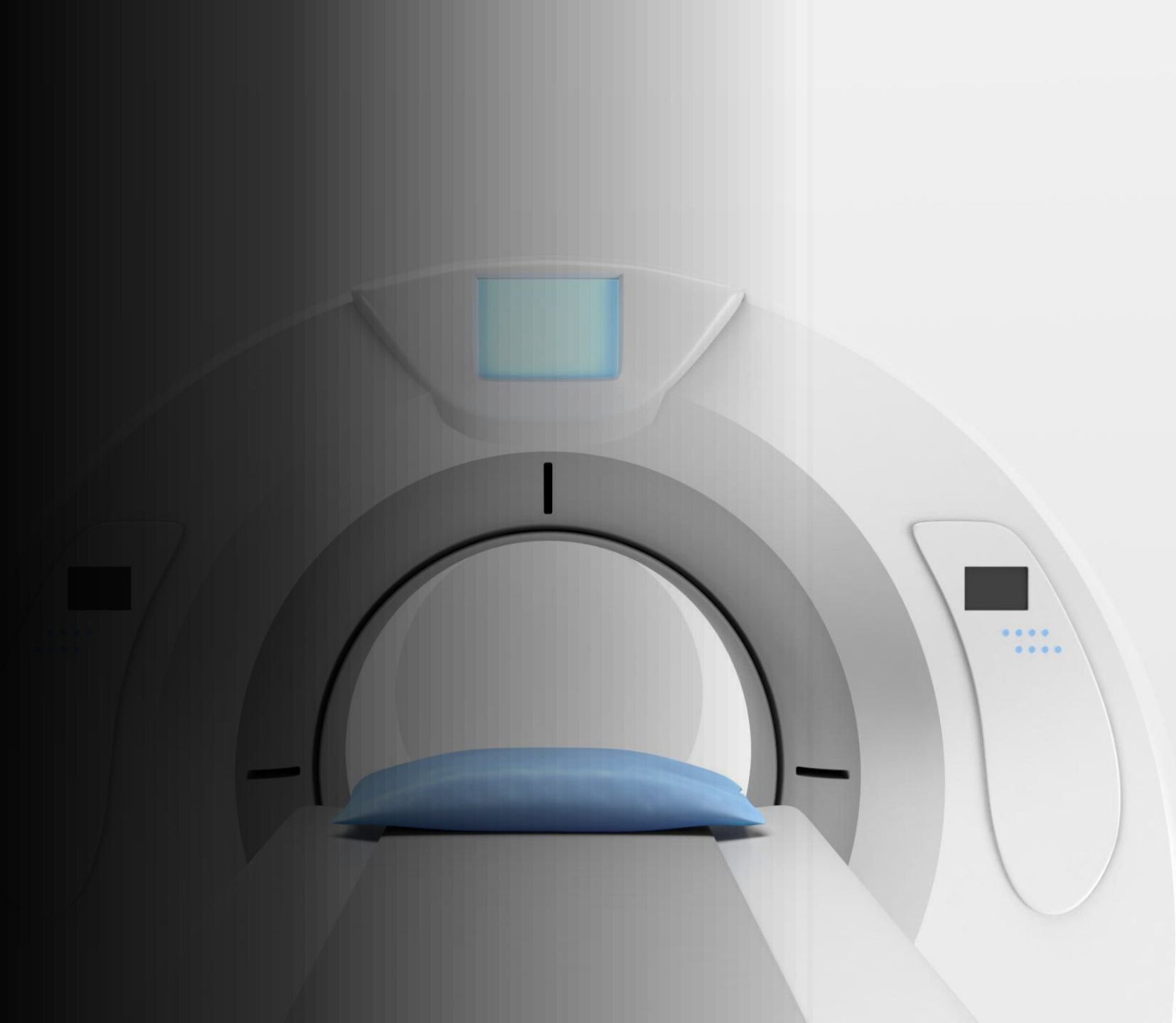
AI in Diagnostic Imaging

Computer modeling leveraging machine learning was essential to understand how excitable tissues such as the heart, muscles, and nerves respond to rapidly changing MRI fields.

Annually, more than 100 million MRI scans are performed worldwide.

Commitment to Technology Integration

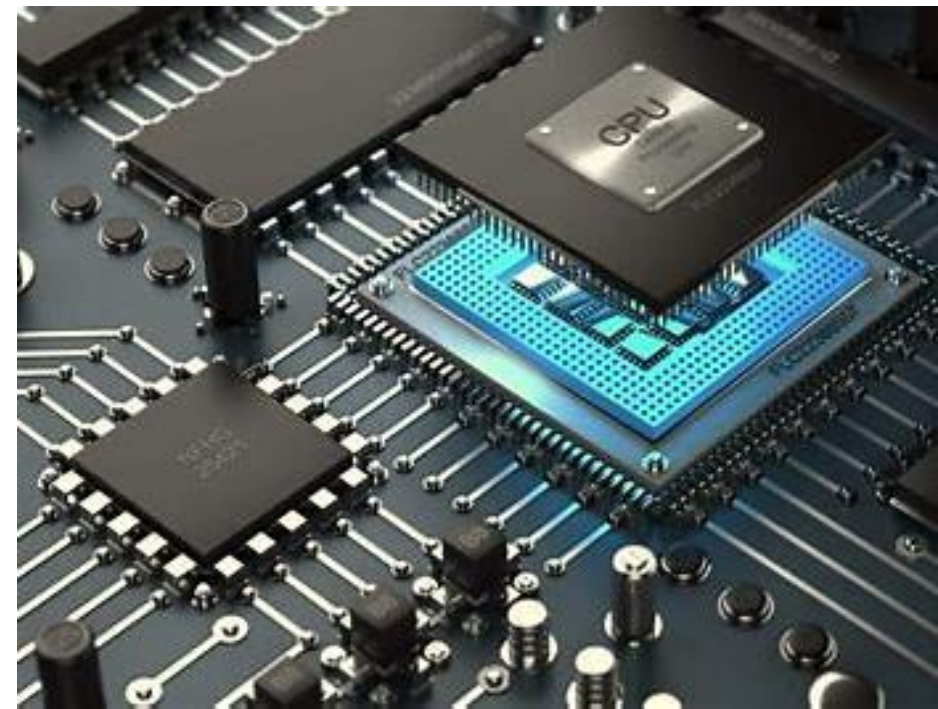
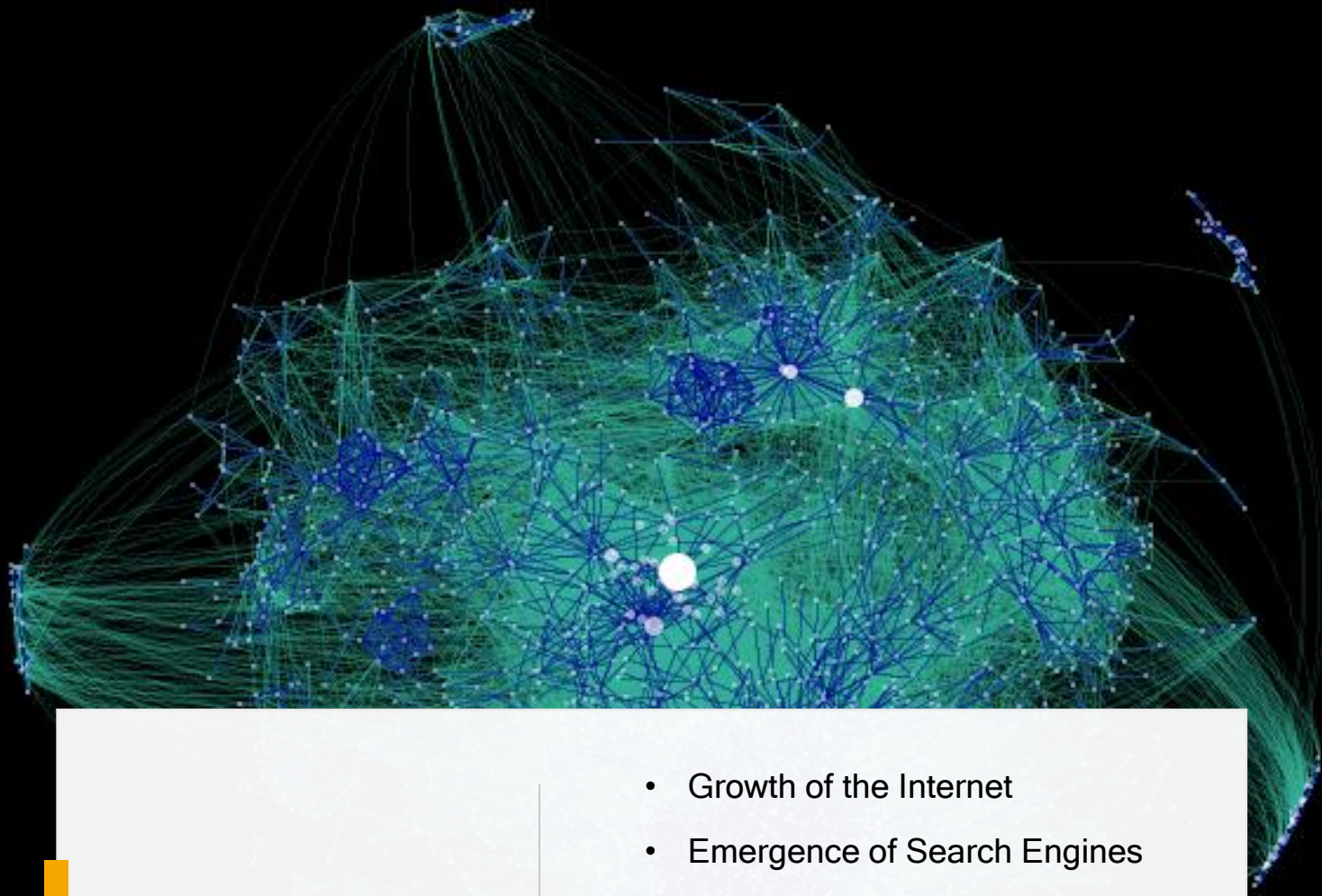
This early experience sparked my enthusiasm for merging advanced technology with healthcare to enhance patient outcomes, with a focus on identifying strokes and cardiac arrest.





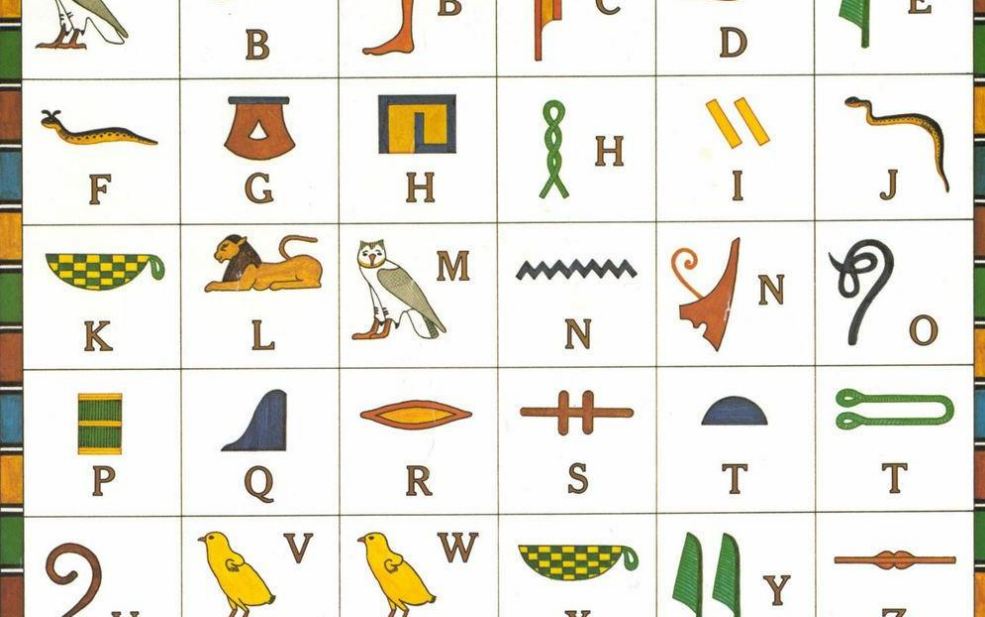
The Evolution of AED Technology (1995-2000)

- Automatic External Defibrillators (AEDs) play a vital role in saving lives during cardiac emergencies.
- Machine Learning models have been key in predicting how the heart responds to new shock waveform designs, aiding in the creation of first-generation AEDs.
- Timely use can increase survival rates from below 10% to 70-90%.



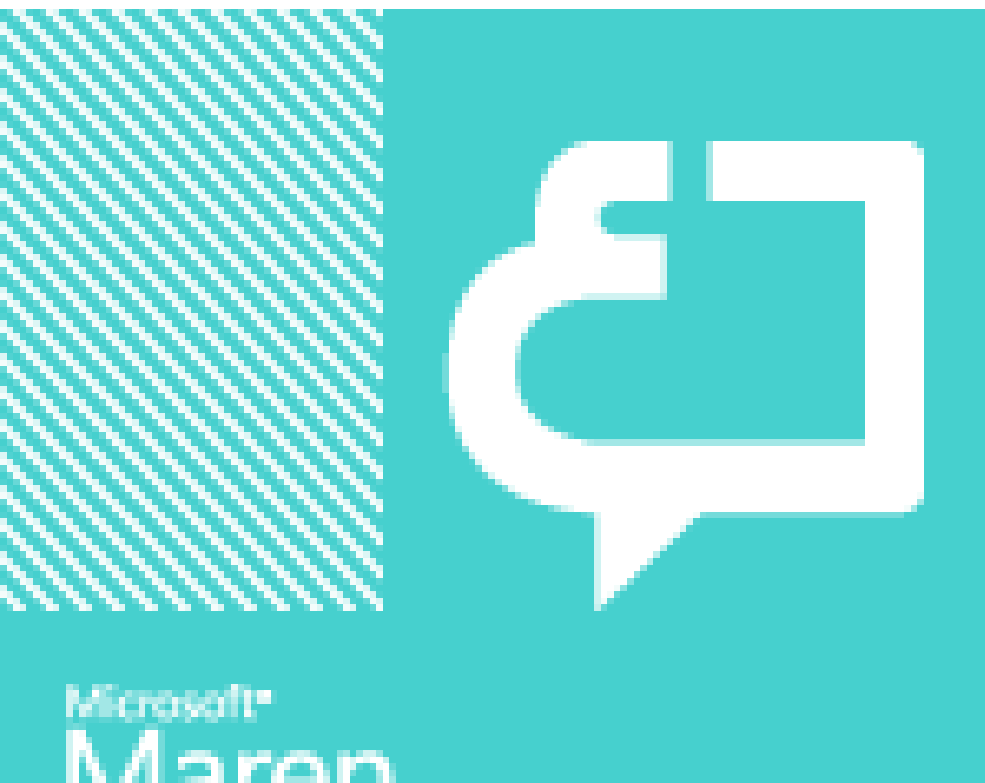
2000 - 2010

- Growth of the Internet
- Emergence of Search Engines
- Rise of social networking platforms and blogging
- Progress in high-performance computing



Arabic Online Search (2005-2010)

- The Microsoft Advanced Technology Lab (ATL) located in Cairo has enhanced search engine techniques for the Arabic language by transitioning from role-based methodologies to probabilistic/statistical modeling. This transformation has significantly improved the Arabic language support in Microsoft offerings, including Bing, and has been applied to additional languages as well.
- At present, ATL Cairo hosts over 250 engineers dedicated to developing AI tools and models for Microsoft products, irrespective of language.



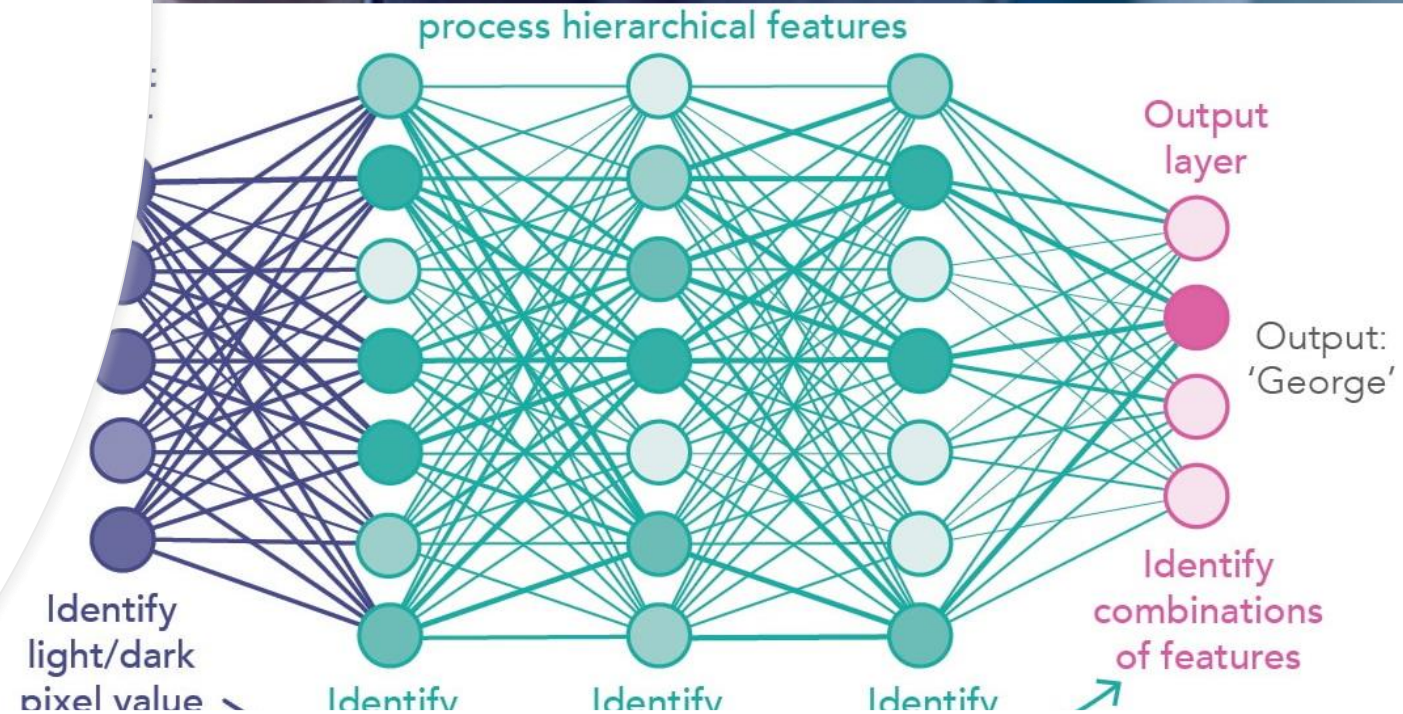
IoT and Streaming Analytics (2010-2015)

- Explosion in sensor technology; Internet of Things (IoT)
- Jeff Hinton and others pioneering deep learning
- Wide adoption of Agile Processes and data driven processes
- Cloud infrastructure continues to grow



Digital Transformation Partnership (2016 - 2022)

- Advances in deep learning have allowed machines to surpass human performance in various recognition tasks.
- The rise of cloud computing has led companies like Amazon, Google, and Microsoft to transform their infrastructure into more commodity-oriented offerings.
- Major technology firms have shifted their business models towards services and consumption-based strategies.





The Rise of Digital Transformation

- 2015 - Present
- Cloud Computing
- Internet of Things IoT

Digital Transformation for the Financial Sector

- More focus on personal banking
- Strong push for integration with Fintech
- Open Banking or risk replacement by blockchains
- Real presence with the unbanked

FINTEC



Digital Transformation for Oil & Gas Industry

- Streamlining of upstream processes, automation
- Expansion of retail activities in downstream sectors
- Alternative energy options; for example, increased charging duration and retail possibilities



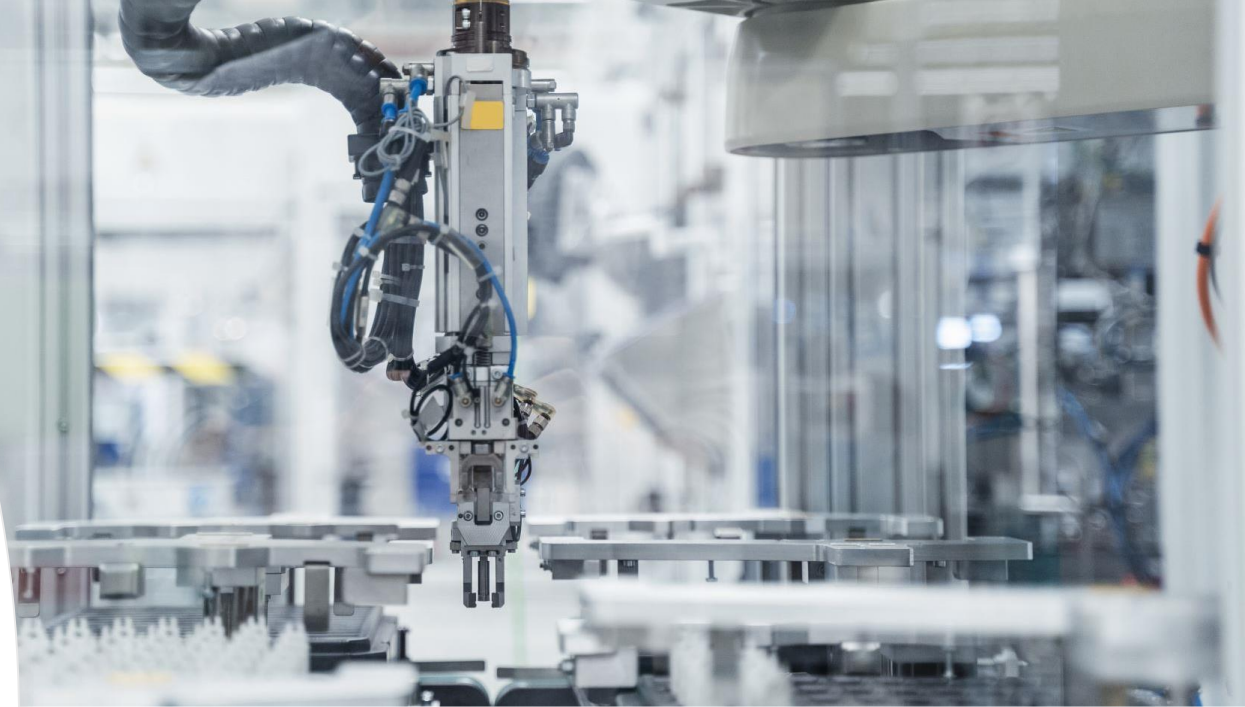
Digital Transformation of Agriculture

- Precision farming
- Connected ecosystems
 - Banks, Farmers, Insurance, consumer products and logistics
- Traceability technology



Digital Transformation of manufacturing industry

- Robots everywhere
- Robots use is extending beyond automotive and electronics
 - Need to support just in time manufacturing
- Predictive maintenance
- Seamless integration in supply chain
 - Traceability technology



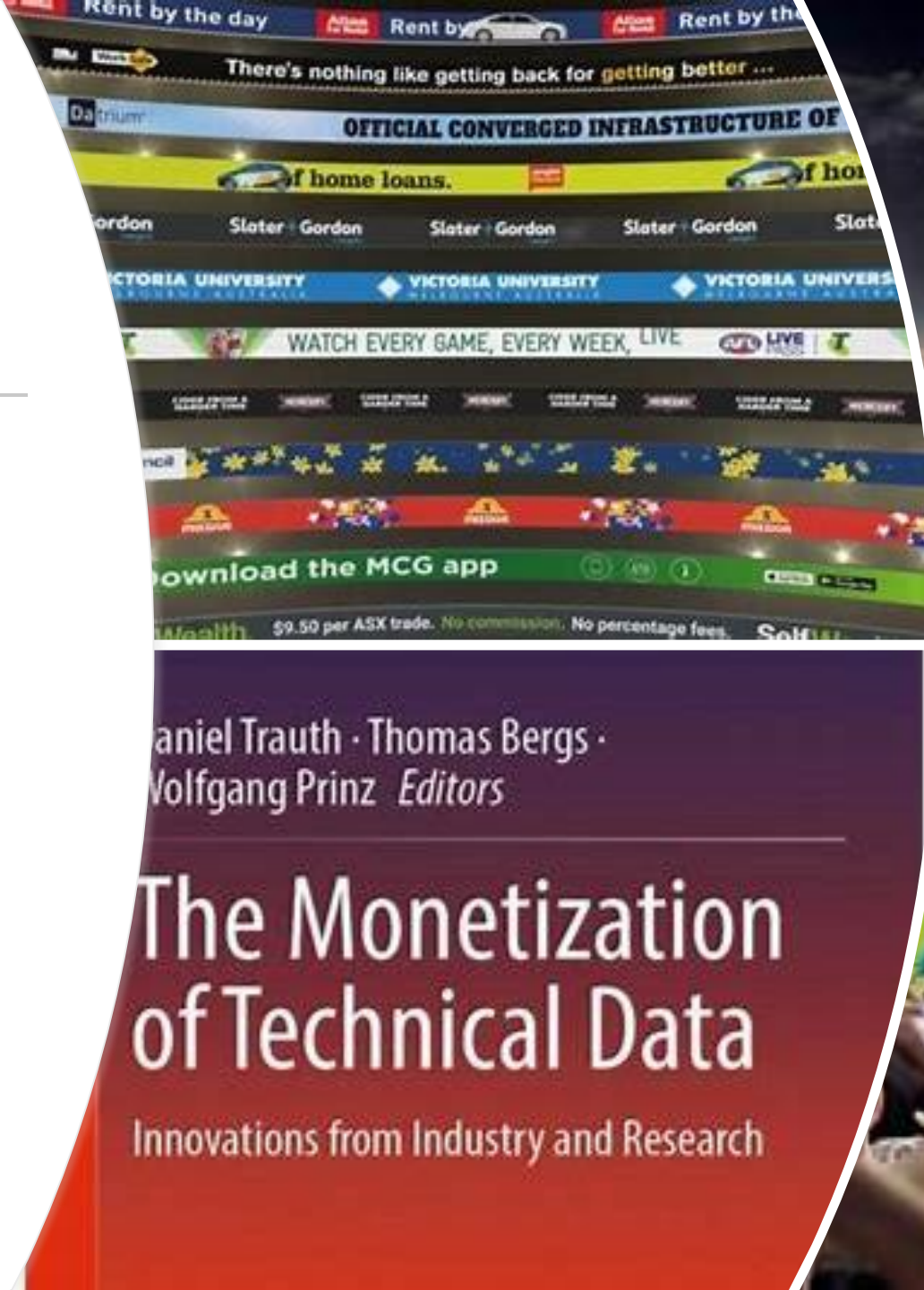
Digital Transformation for Automotive

- Timeshared services
- Alternative Energy
- Autonomous Cars
- Robo-Taxi



Digital Transformation for Sports Industry

- Fan monetization
 - Global reach
 - Fantasy Sports
- Immersed Advertisement during events
- Crowd sourcing of content



Smart Cities

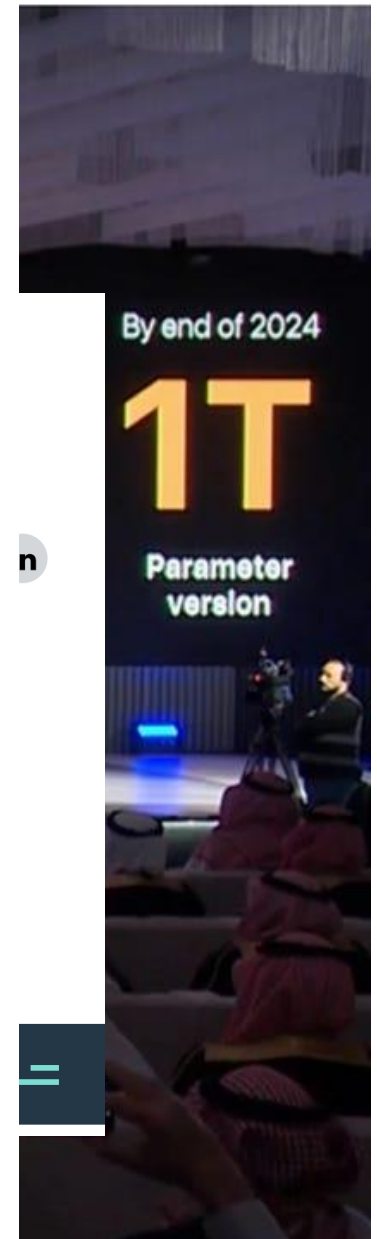
- Efficient energy management and more green policies
- Traffic prediction / management
- Dynamic Toll Pricing
- Noise control
- Viruses control and contact tracing
- Automatic security management and crime prediction
- Disaster response and recovery systems





2022 Chat Agent

- The *Egypt National Artificial Intelligence Strategy 2025–2030* was announced by Egyptian President Abdel Fattah El-Sisi on Wednesday.
- The 80-page national strategy seeks to raise the ICT sector's contribution to Egypt's GDP to 7.7% by 2030, include the creation of 250+ AI startups and develop a talent pool of 30,000 AI professionals.
- The new strategy focuses on six pillars: Governance, ICT and AI infrastructure, Technology, Data, Ecosystem, and Talent.
- Key to the vision of the 2025-2039 strategy is 1) driving inclusive AI to foster Digital Egypt, which seeks to social and economic development and benefiting all Egyptians; and 2) the development of a national foundational model “as a basis to drive industry development and regional cooperation.”
- Egypt aims to develop a large national Arabic language model to perform tasks such as language translation, sentiment analysis, and content generation with a high level of accuracy and efficiency, specifically in Arabic language.
- The national LLM would then be used to enable domain-specific LLMs for key industries - such as agriculture, healthcare and law - support new digital industries and generally improve efficiency.
- The strategy emphasises ethical AI use, with a comprehensive regulatory framework under the Egyptian Charter for Responsible AI (published in 2023).
- Plans include supporting AI startups and R&D through dedicated grants, funding, and international collaboration.



What's next?

- LLMs equipped with physical awareness...
- Emerging form factors of cyber-physical systems
- Increasing demand for system validation and verification from regulatory bodies





The Robot Can See Demonstration



Situation Understanding Demo

Risks of AI to Humanity

- Job displacement due to automation affects many industries.
- Ethical concerns around privacy and surveillance arise.
- AI can perpetuate biases leading to discrimination.
- Loss of human control over autonomous systems is a risk.
- AI poses security threats through malicious applications.
- Information warfare and manipulation can undermine democracy.
- Existential risks from superintelligent AI need consideration.



Call To Action!!

Talent Relevancy

Mathematics / Data Science

Agentic Skilling / Domain Knowledge



- Utilize the economic potential of 450 million Arabic speakers.
- Strategically develop, promote, and protect pan-Arabia data assets
- Enhance digital presence through mobile apps, digital identities, fintech, eHealth, and eLearning solutions.
- Explore the Arab League Digital Certificate.



- AAA: Align, Adhere and Actively participate in international organizations standards and policies (EU, UN, Asia..)

- Advocate for specialization at the national level, within academic institutions, and throughout the ecosystem.

- Align the Investment strategies for Data Centers across Arabia
 - Optimize for latency and energy consumption.
 - Stop the race among wealthy countries



THANK YOU