MY AI- Opportunities and Challenges

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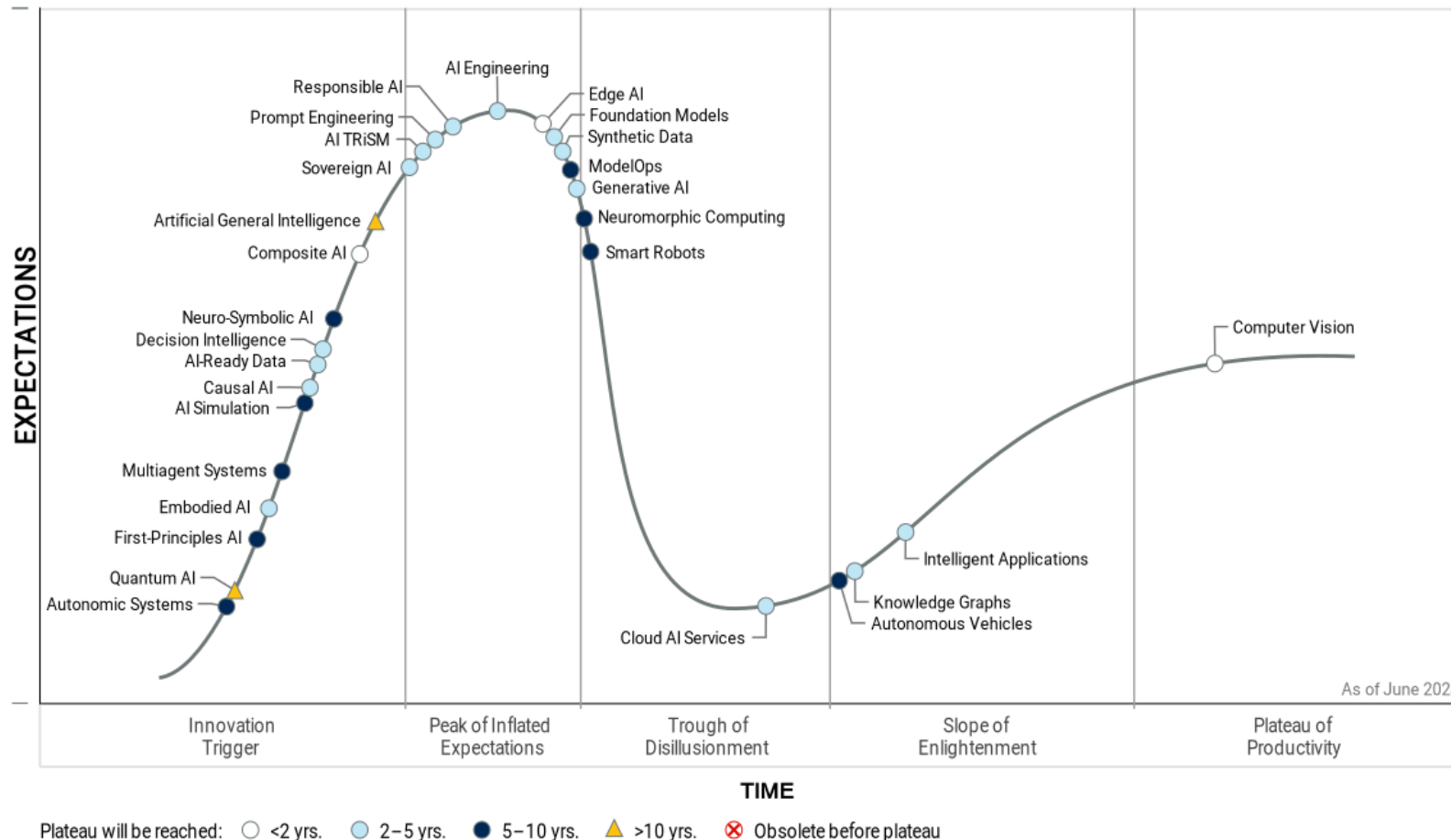Presented at the 2024 MY Hack, July 7, 2024

Outline

- A great gift from Allah (SWT)

وَسَخَّرَ لَكُم مَّا فِي السَّمَاوَاتِ وَمَا فِي الْأَرْضِ جَمِيعًا مِّنْهُ ۚ إِنَّ فِي ذَٰلِكَ لَآيَاتٍ لِّقَوْمٍ يَتَفَكَّرُونَ ﴿١٣﴾ [45:13]

- Survey https://forms.gle/rmTkzzK43RWPyzWU7

- Some Definitions, and buzzwords
- Typical AI Tasks, Techniques, and Technologies
- Brainstorming some ideas
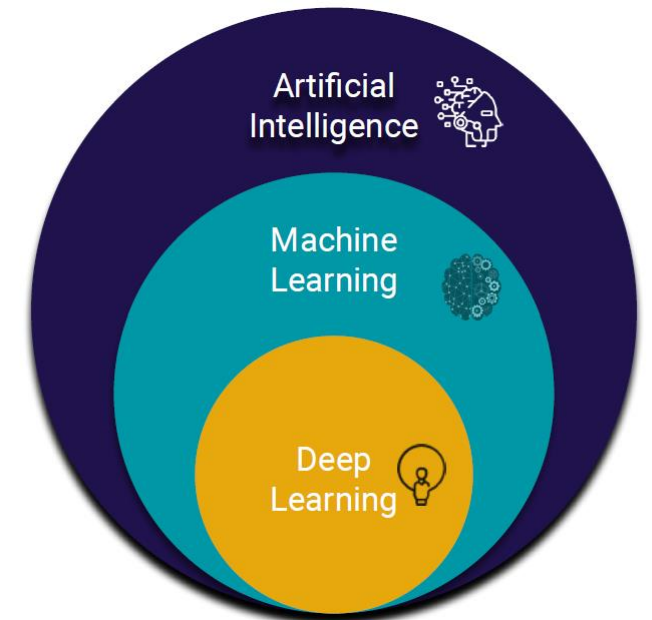- Trust and Ethical Issues

All the buzz around …. (Gartner Report)

Hype Cycle for Artificial Intelligence, 2024

How do you get into this area?

- Like it or not, you are part of this rev

- Do you have to be a tech-nerd?
  - No. [Forget STEM. Head of Paris's top tech university says the secret to France's AI boom is a focus on the humanities (msn.com)](msn.com)
  - "AI is now instilling every discipline the same way mathematics did years ago,"
  - Questioning, creativity skills, and innovation skills will be in hot demand, in addition to the Technologies

Sample Ideas

Topic	Short Description	Primary AI Task	Technology
Teach non-Muslims about Islam	True knowledge. Identify the falsehood, Prfomote Truth,	Classifications, Detection	NLP, TensorFlow/PyTorch, Flask/Django
		Agent	
		Content Generation	
		Graphic Design	

Leveraging AI technology

- AI, Predictive AI, Generative AI
- Developing-- new AI models, frameworks, apps
- Customizing– Using RAG Technology (using Hugging Face for example) to get context-aware information from GPTs
  - a technique that combines the capabilities of retrieval-based systems and generative models like GPT to enhance the generation of text.
- Configuring – Fine-tuning GPTs, parameters
- Using Turn-key solutions
  - ChatGPT
  - [Turn ideas into videos | AI video creator | invideo AI](#)
  - [Ideogram](#)
  - [Hugging Face – The AI community building the future.](#)
  - Text-to-image– Stable Diffusion. [Stable Diffusion Online (stablediffusionweb.com)](#)

How to customize an existing language model?

- Get/Format your own data
- Set up your environment
    - Get the computing resources: GPU- cloud services
    - Select the Frameworks: like PyTorch or TensorFlow
    - Fine-Tune a pre-trained model: Hugging Face, a platform where developers can share code, datasets, and models
    - Tokenize your data using the same tokenizer as the pre-trained model
    - Evaluate and Test the updated model
    - Deploy (using services like AWS SageMaker, Google AI platform or custom Flask/Django)

Fake Detection, Media Verification

- For this type of applications, the models need to be fine-tuned for classification, Detection tasks.

- GPT-3.5/4 are not good model for this type of problems

- Alternatives:
  - **BERT (Bidirectional Encoder Representations from Transformers)**: BERT is specifically designed for understanding the context of words in a sentence and can be fine-tuned for classification tasks.
  - And variants

https://idir.uta.edu/claimbuster/

https://exiftool.org/

https://29a.ch/photo-forensics
https://csmr.umich.edu/projects/iffy-quotient/
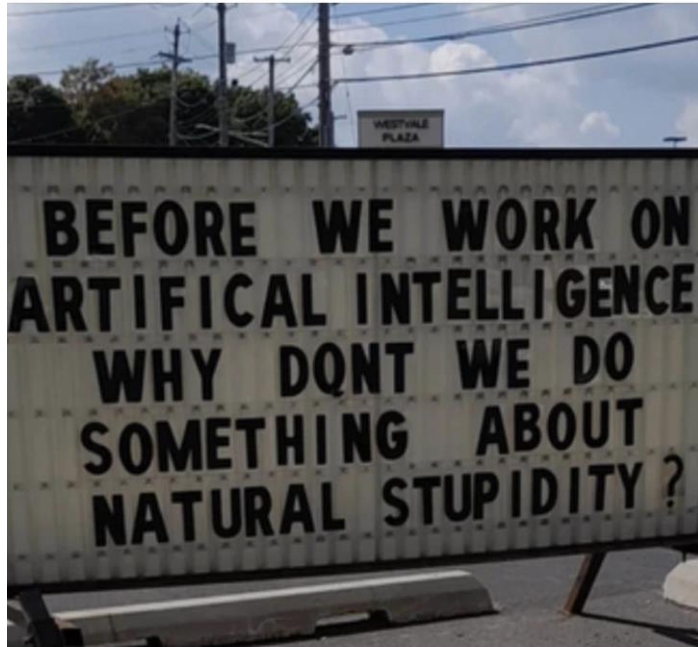http://reveal-mklab.iti.gr/reveal/index.html

https://www.snopes.com/

Responsible AI (RAI)

- AI solutions could be irresponsible, Biased, unethical, and misused
- A report from Bentley University and Gallup indicates that 79% of Americans [don't trust businesses to use AI responsibly](#).

- [Responsible AI Toolkit (tradewindai.com)](#)
- [Ethical Principles for Artificial Intelligence > U.S. Department of Defense > Release](#)

- Study all the AI Ethics framework (USA, EU, Vatican etc.)--Show how close they are with foundational Values of Islam
- Therefore Muslims can lead in this effort of AI.
- Getting the best out of AI while being Prayerful and faithful.

Bottomline

- We must make ourselves ready for the opportunities and challenges that come with an AI-enabled future
- "the countermeasure for every risk is not slowing down; it is ensuring that those favoring liberty and empowering humanity have better AI than those on the side of chaos and despotism"– Salman Khan
- Have **AI mindset**