Business Innovation and AI

January 9th, 2025

**Introduction**

*Hierarchy of AI*

* AI is a machine imitating human behavior/activity
* Machine Learning is imitating the learning capability of humans
* Deep Learning: imitating human learning by modeling the structure of the human brain (neural networks)
  + GenAI: machines that can emulate short-term memory

\*\*Data scientists must have some sort of business acumen and be able to apply all of these concepts... how can we monetize AI?\*\*

**Artificial Narrow Intelligence:** one trick pony (AI that can do one thing REALLY well)

* Up until 2020, this was the only type of AI
* Supervised and Unsupervised ANI
  + Supervised: predictive analytics
  + Unsupervised: prescriptive analytics

**\*Artificial General Intelligence**: machine that can emulate most capabilities of humans and their reason/logic

* ChatGPT-esque
* If you can't tell that you’re talking to a machine, then AGI has passed

**Artificial Super Intelligence:** AI whose job is to write more AI

* Essentially, removing humans from the loop
* AI making itself better (i.e, the matrix and terminator)

\*\*ALL AI DOES IS TRANSFER ONE DATASET INTO ANOTHER DATASET\*\*

* Simple A to B mapping, Input to Output function
* Matrix -> Function -> Matrix

**Neural Networks:**

* Neurons find one and ONLY ONE patten in the data
* NN learns the data on its own (the more data, the better)

**\*\*THEORY OF MIND\*\***

* the ability to predict how others think/feel,,, looking for cues that the audience is understanding or not
* AI learning language is learning our realities and our thoughts???

Business Innovation and AI

January 16th, 2025

**Introduction**

* AI is creating tremendous value in EVERY industry
* Narrow AI vs General AI
  + Narrow: one trick pony
  + GenAI: AI that can do anything a human can do
  + SuperAI: AI that improves itself (Matrix)

**Machine Learning**

* We can't have machine learning without historical data
* Simple input to output, A to B mapping
* Recommender systems >> most important

**Why Now?**

* Google decided they wanted to archive the internet, so they created Big Data (Hadoop)
  + Infinitely large databases
* We have more data than we’ve ever had in human history and more compute power

**Acquiring Data**

* Manual labeling
* From observing behaviors
* From websites/partnerships

**Machine Learning vs Data Science**

* MLE: the programmers, the ones who do the A/B mapping
  + Only con is that they don't have deep industry experience
* DS: almost always more valuable to an organization
  + Ideate solutions, pull insights, build and analyze a model
* ML = software, DS = slide decks

**Deep Learning**

* A type of AI that models the human brain (large neural networks)
* The most powerful piece of technology that's ever been created

**AI Transformation**

1. Execute pilot projects to gain momentum
2. Build an inhouse AI team
3. Provide broad AI training
4. Develop a strategy
5. Develop internal and external communications