IT Symposium 2025

The AI Shift: From Reactive to Agentic

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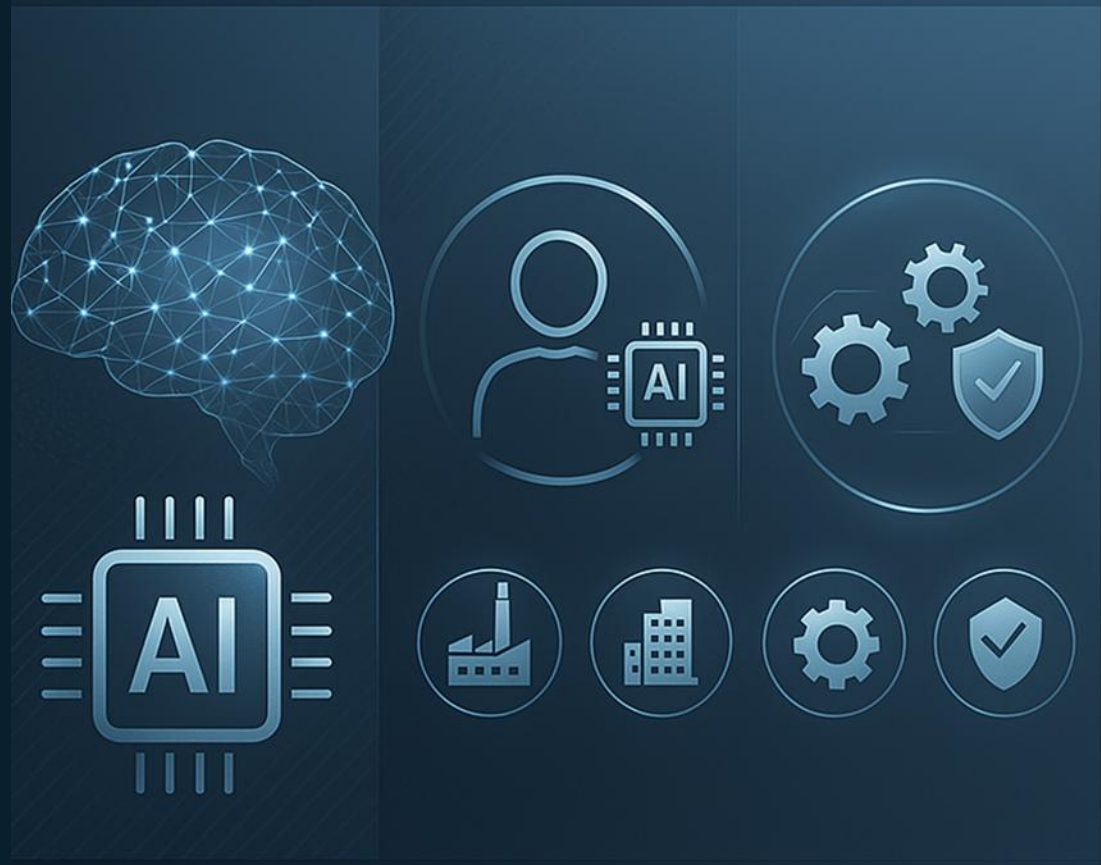
Agenda

- AI Primer
- Generative AI Spectrum
- History of AI
- Reactive vs Agentic AI
- Pitfalls of Gen
- AI Outlook
- Future Contacts

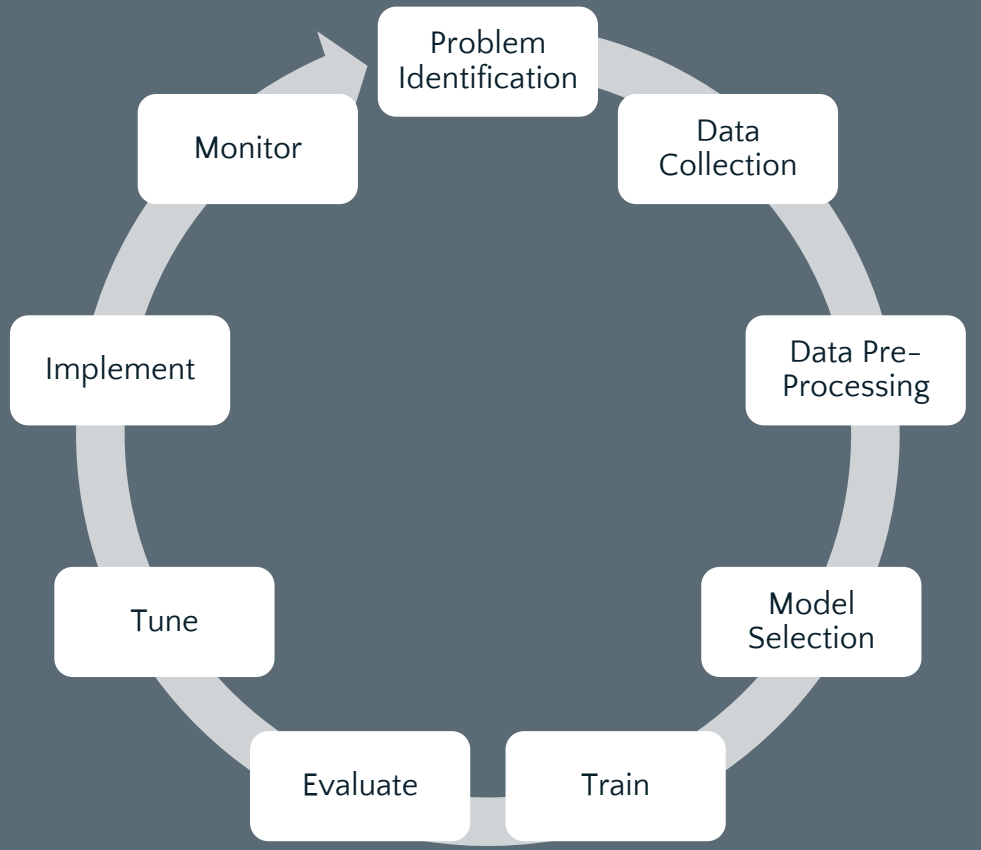


What is AI

AI (Broad Concept)

Artificial Intelligence (AI) is the overarching field that studies the creation of machines or systems capable of performing tasks that typically require human intelligence. These tasks include language comprehension, visual recognition, decision-making, and problem-solving.

How AI Works (Concept)



Two Approaches to AI

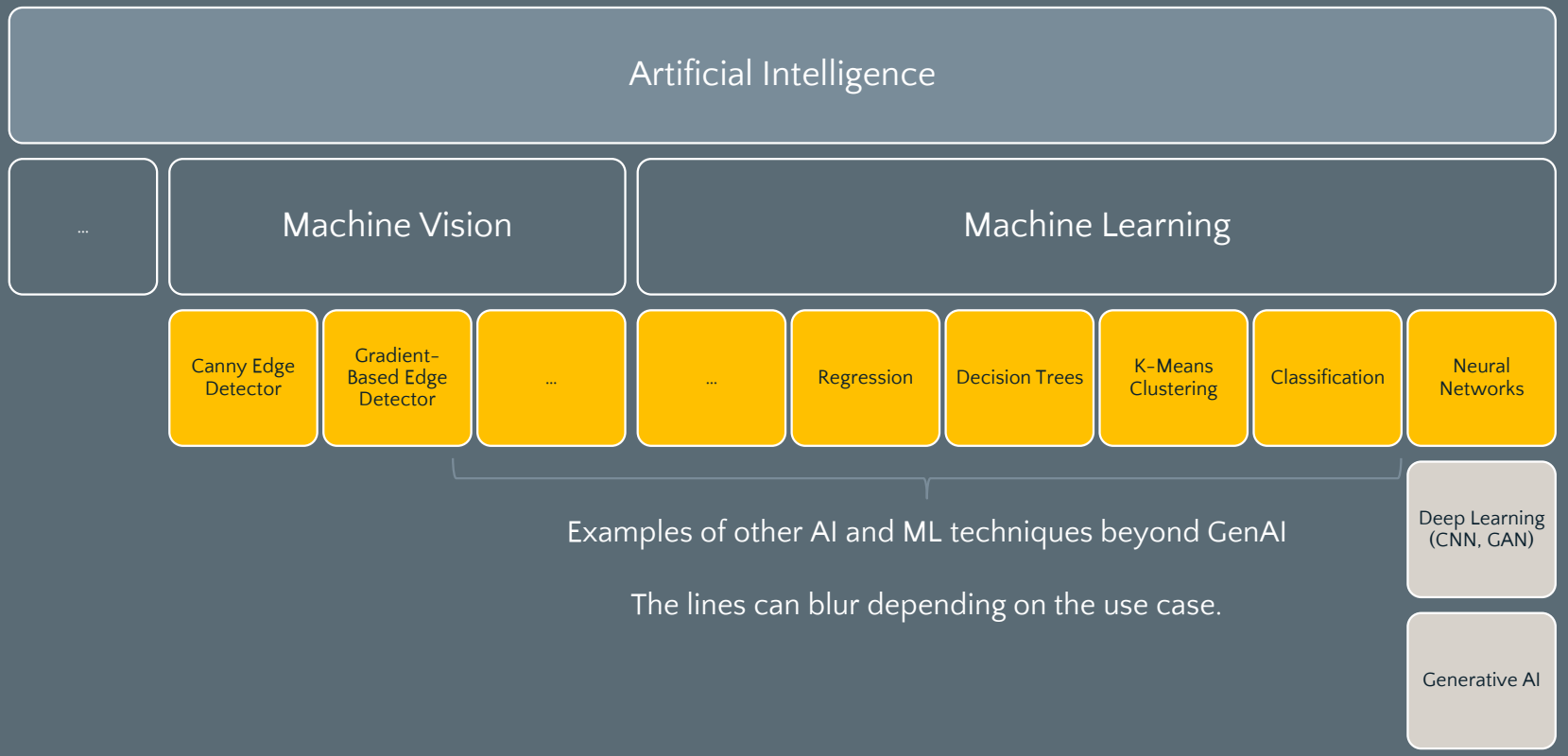
Discriminative

Discriminative AI concentrates on identifying the boundaries between different classes in training data. Instead of generating new samples, these models classify input data by recognizing patterns and features unique to each class. They are commonly employed in tasks such as classification, regression, sentiment analysis, and object detection.

Generative

Generative AI aims to create models that produce new data resembling the training data. These models understand the probability distribution of the training data and can generate new samples based on that learning.

Example: A comparative view of AI, machine learning, deep learning, and generative AI



A comparative view of AI, machine learning, deep learning, and... | Download Scientific Diagram (researchgate.net)

The State of AI

Applied

Artificial Intelligence (AI)

Definition: AI refers to computer systems capable of performing tasks that typically require human intelligence, such as recognizing speech, making decisions, and identifying patterns

Capabilities: AI is used in various applications like recommendation systems, chatbots, and autonomous vehicles

Applications: Includes machine learning, deep learning, and natural language processing

Generative Artificial Intelligence (GAI)

Definition: Generative AI is a subset of AI that can create new content such as text, images, video, audio, or software code based on its training data

Capabilities: Uses deep learning models to identify patterns in large datasets and generate new content in response to user prompts

Applications: Includes tools like ChatGPT for text generation, DALL-E for image creation, and other models for generating music and video

Theoretical

Artificial Generalized Intelligence (AGI)

Definition: AGI refers to AI systems that can understand, learn, and apply intelligence across a wide range of tasks at a level comparable to human intelligence

Capabilities: Unlike narrow AI, which is designed for specific tasks, AGI can perform any intellectual task that a human can

Current Status: AGI is still a theoretical concept and has not yet been achieved

Artificial Super Intelligence (ASI)

Definition: ASI is a hypothetical form of AI that surpasses human intelligence in all aspects, including creativity, problem-solving, and decision-making

Capabilities : ASI would have cognitive abilities far beyond human capabilities and could potentially revolutionize various fields

Current Status: The development of ASI involves significant ethical, technical, and safety challenges

What Is Artificial Superintelligence? | IBM
What is Generative AI? | IBM
What Is Artificial Intelligence? Definition, Uses, and Types | Coursera

Timeline of AI

1950s – Birth of AI
- *Turing Test, Symbolic AI*
- Rule-based systems

1980s – Expert Systems
- *Knowledge engineering*
- Domain-specific intelligence

1990s – Machine Learning Emerges
- *Statistical models, decision trees*
- Data-driven learning

2010s – Deep Learning Revolution
- *Neural networks, image & speech recognition*
- Rise of big data and GPUs

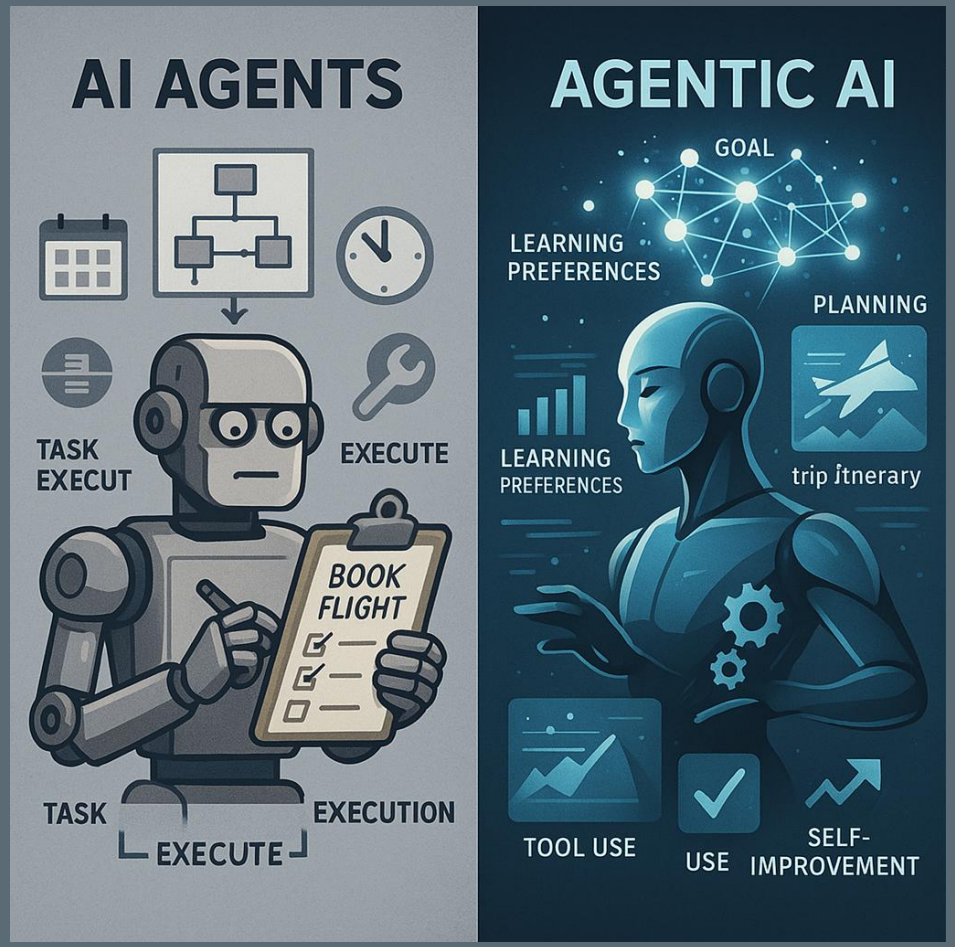
2020s – Foundation Models
- *Large Language Models (LLMs), Transformers*
- General-purpose capabilities

Mid-2020s – AI Agents
- *Autonomous task execution, tool use*
- Multi-modal, multi-step reasoning

Late 2020s – Agentic AI
- *Goal-driven, self-directed systems*
- Planning, memory, reflection, adaptability

Future?

Reactive AI (AI Agents) vs Agentic AI



AI Agents	Feature	Agentic AI
Executes tasks with predefined logic	**Autonomy**	Sets and adapts goals independently
Limited or task-specific	**Memory**	Persistent, contextual, and evolving
Follows scripted workflows	**Planning**	Dynamic, multi-step planning and replanning
Reactive	**Adaptability**	Proactive and reflective
Uses tools when instructed	**Tool Use**	Selects and uses tools strategically
Static behavior	**Self-Improvement**	Learns from outcomes and adjusts strategies
Chatbot booking a flight	**Example**	AI that plans a trip, books, reschedules, and learns preferences

New Challenges from GenAI

:Curl Defends Flood of AI Generated Bugs from HackerOne

- Earlier this year, Curl maintainer Daniel Stenberg complained on LinkedIn about a flood of "AI slop" bug reports that had been coming in.
- The project was "effectively being DDoSed," he wrote. And the culprit was volunteers for the bug bounty site HackerOne.

Data Centers on the Rise – Power Costs of AI

- Globally, data centers are also poised to grow significantly. The International Data Corp. in September 2024 that total electricity consumption by data centers will more than double, reaching 857 TWh by 2028—a CAGR of 19.5%. AI-specific workloads are anticipated to grow even faster, with energy consumption increasing at a CAGR of 44.7%, reaching 146.2 TWh by 2027.

Humans are being hired to make AI slop look less sloppy

- "Gen AI cleanup" is now a job. Companies are hiring designers, developers, and illustrators to clean up low quality AI output.
- The promise versus reality gap: instead of replacing creative work, many companies are paying twice – once for the AI tools to draft and then humans to make it usable.

Jake’s Outlook

1. Coding Will Be a Key Value
2. Data Quality is Crucial
3. HIL Models Are Game-Changers
4. Evolving Fraud Detection
5. Agentic Thugware Threat

Mike’s Outlook

1. Don’t Overlook Other AI/ML Capabilities
2. Expect a Shift in Outsourcing Trends
3. Understand the Critical Need for Integration
4. Know Generative AI’s Intelligence Limitations
5. Data Bias and Inequality

Questions

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