

AI: STEAM Workshop

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INTRODUCTION

More About Us!

- How did we get into AI?
- What makes us passionate about AI?

Now Let's Hear From You!

- Go to menti.com and upload words that you think describe AI, or, words that describe how you've experienced it.
- Use code 2679 2293 or scan the QR code on the next slide!

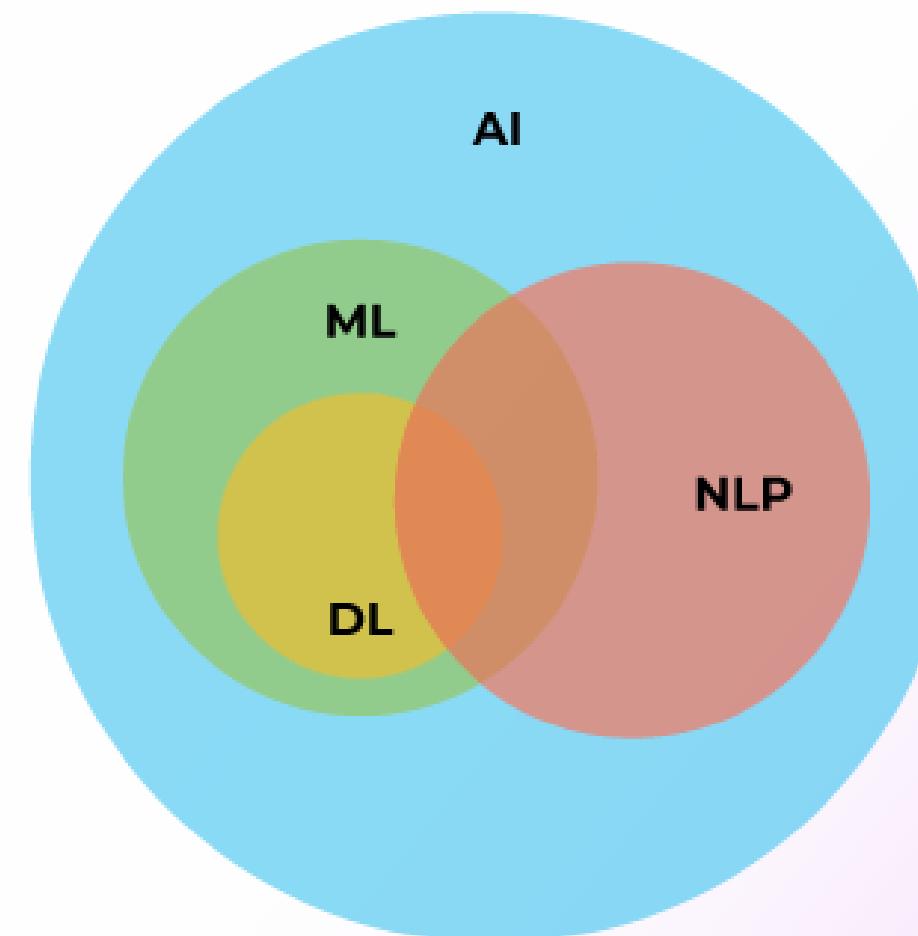
Now Let's Hear From You!



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Artificial Intelligence

- **Main idea:**
 - Replicate human intelligence in machines
- **Machine Learning:**
 - Subset of AI
 - Machines learn patterns in data
 - Predict the next outcome
- **How Machines Learn:**
 - Create equations from data
 - Remember: $y = mx + b$?



"AI is about creating algorithms that allow computers to learn from data and make decisions or predictions."

- Artificial Intelligence
- Machine Learning
- Language Processing
- Deep Learning

Pillars of Machine Learning

Types of Learning:

- **Supervised:**

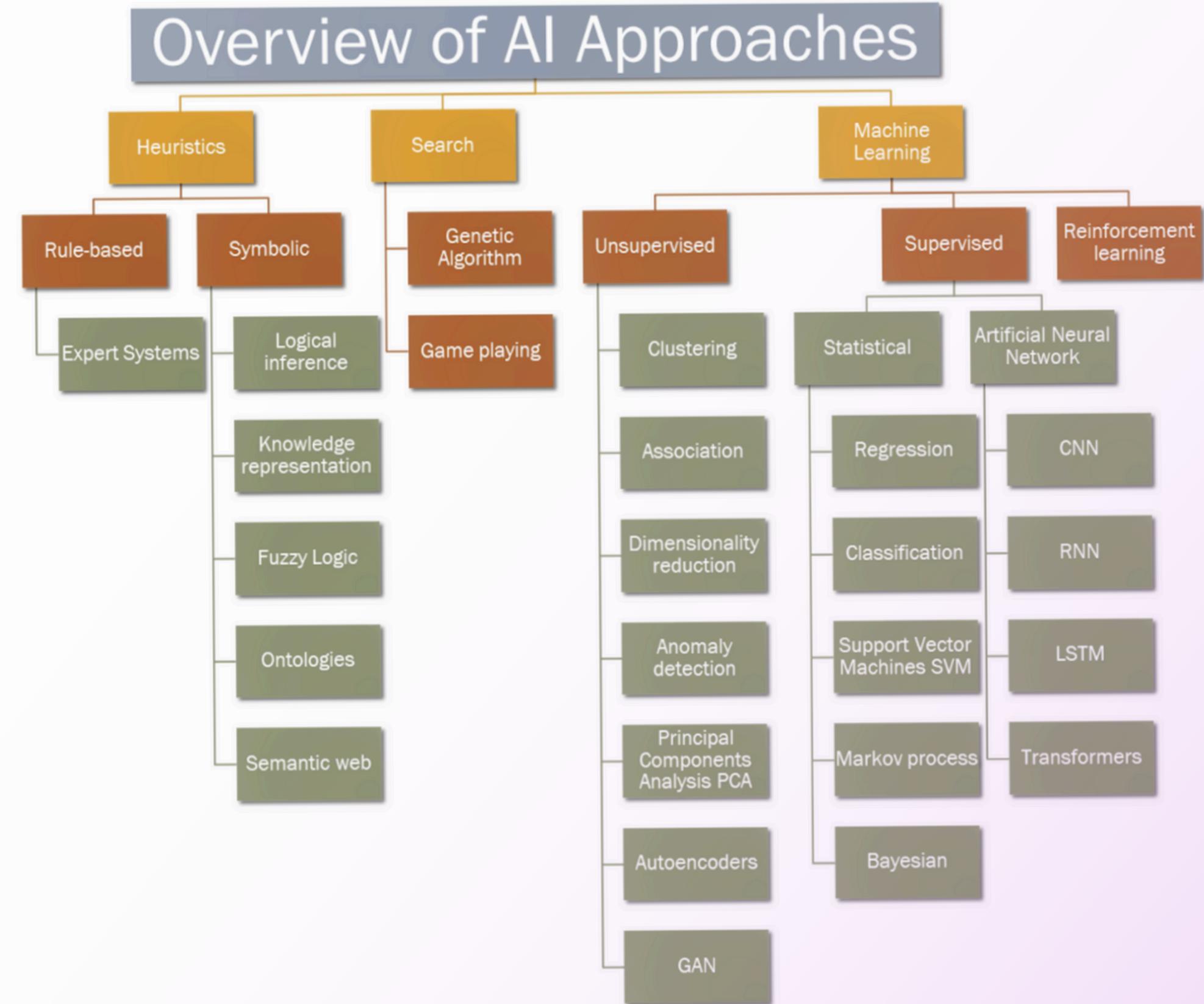
- Learn from data with examples
- Ex: Learning how to drive

- **Unsupervised:**

- Learn from data without examples
- Ex: A baby learning to walk

- **Reinforcement Learning:**

- Learn from actions and consequences
- Ex: Ivan Pavlov's dogs



Applications of AI

AI Domains	Key Trends/Opportunities
Sustainability	Predictive modeling for renewable energy, waste reduction, and conservation.
Healthcare	Personalized medicine, AI-driven diagnostics, ethical data usage in medical AI.
Education	Adaptive learning systems, AI tools for accessibility, personalized learning experiences.
AI Governance	Development of ethical guidelines, participatory governance models, policy-making.
Privacy & Security	Balancing AI innovation with data privacy, secure AI systems, ethical data handling.
Entertainment	Design user curated content recommendations (E.g. Spotify, Netflix, TikTok).

Unsupervised Learning Activity



<https://bit.ly/3UsqQ57>



Generative AI

Generative vs. Discriminative AI:

- **Generative:**

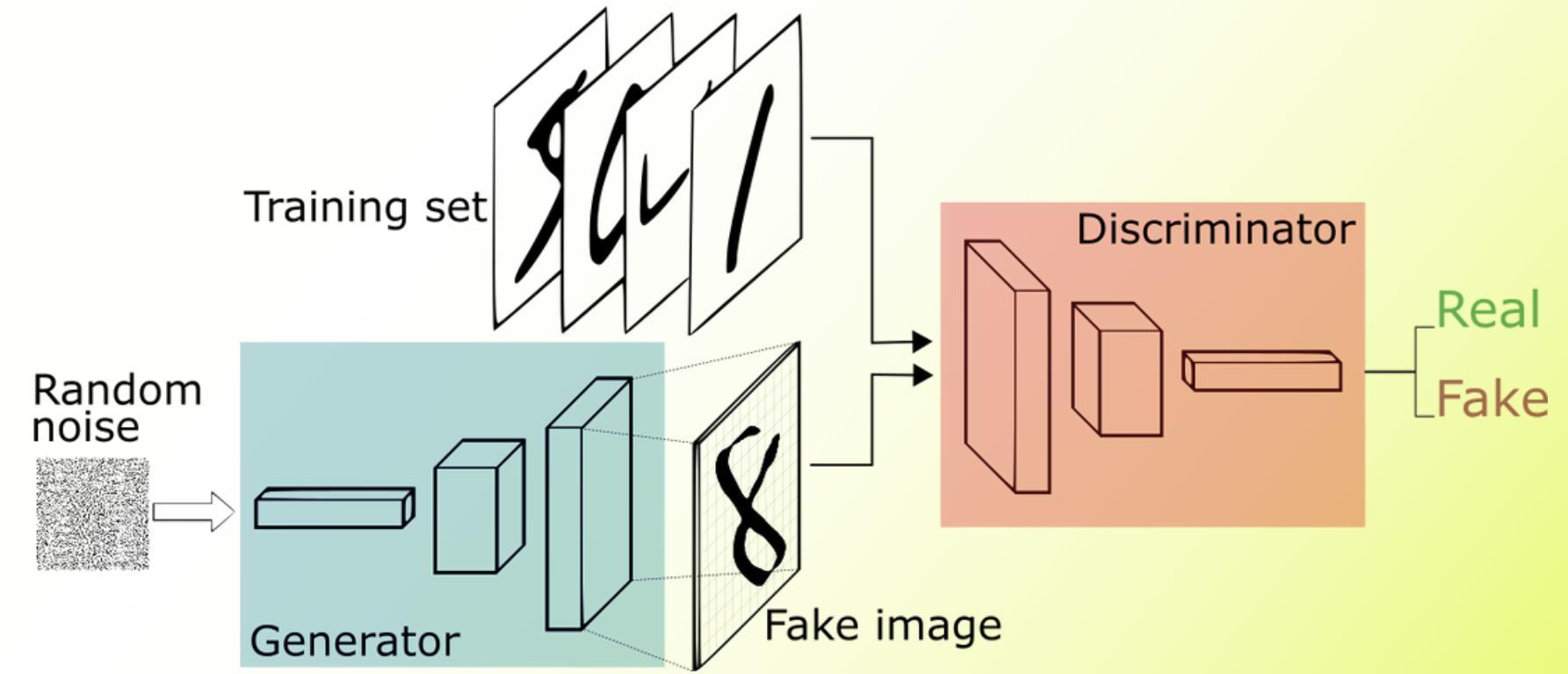
- Aim to understand and replicate data to generate new instances.
- Ex: Text, audio, images.

- **Discriminative:**

- Focus on distinguishing between different types of data inputs and predict labels.
- Ex: Cats vs. Dogs

Generative Adversarial Networks:

- Generator generates realistic-looking images that fool the discriminator
- Discriminator tries to distinguish between real and fake images
- **Main idea:**
 - Two AIs competing against each other!



Generative Adversarial Network (GAN)

AI for Image Generation



<https://build.nvidia.com/stabilityai/sdxl-turbo>



CONNECTION ()

- **Some cool AI tools/resources to try out:**
 - <https://www.interviewjarvis.com/>
 - Provides AI-simulated personalized interviews based on your resume.
 - <https://www.chefgpt.xyz/>
 - Provides AI-powered recipe recommendations and meal plans.
 - The AI Pulse --> tools database for more.

CONCLUSION (2)

- **How to get involved:**

- Data science and machine learning courses online, YouTube videos, etc.
 - Search for courses on sites like Udemy, Coursera, and others to enhance your knowledge and gain fundamental skills necessary for the field
- Subscribe to The AI Pulse Newsletter for daily updates about what's happening in the AI world, as well as trending tools

CONCLUSION (3)

- **Careers in AI:**

- AI Ethicist (civil example)
 - Address ethical concerns related to the development of AI, ensuring that AI systems are fair, transparent, and aligned with societal values.
- Robotics Engineer (hardware example)
 - Design, build, and program robots and autonomous systems that can perceive, interact with, and manipulate the physical world using AI and sensor technologies.
- Data Scientist (software example)
 - Analyze large volumes of data to extract insights and patterns, using machine learning and statistical techniques to solve complex problems

Train a GAN!



<https://bit.ly/4bnSUxy>



REFLECTION

Express what you've learned!

- Tell us something you've learned!
 - Did they learn something new or how to do something they didn't know how to before the workshop?
- Go to menti.com and upload words that you think describe your experience in this workshop, or what you've learned.
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Now, Let's Hear From You Again!



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Q&A

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