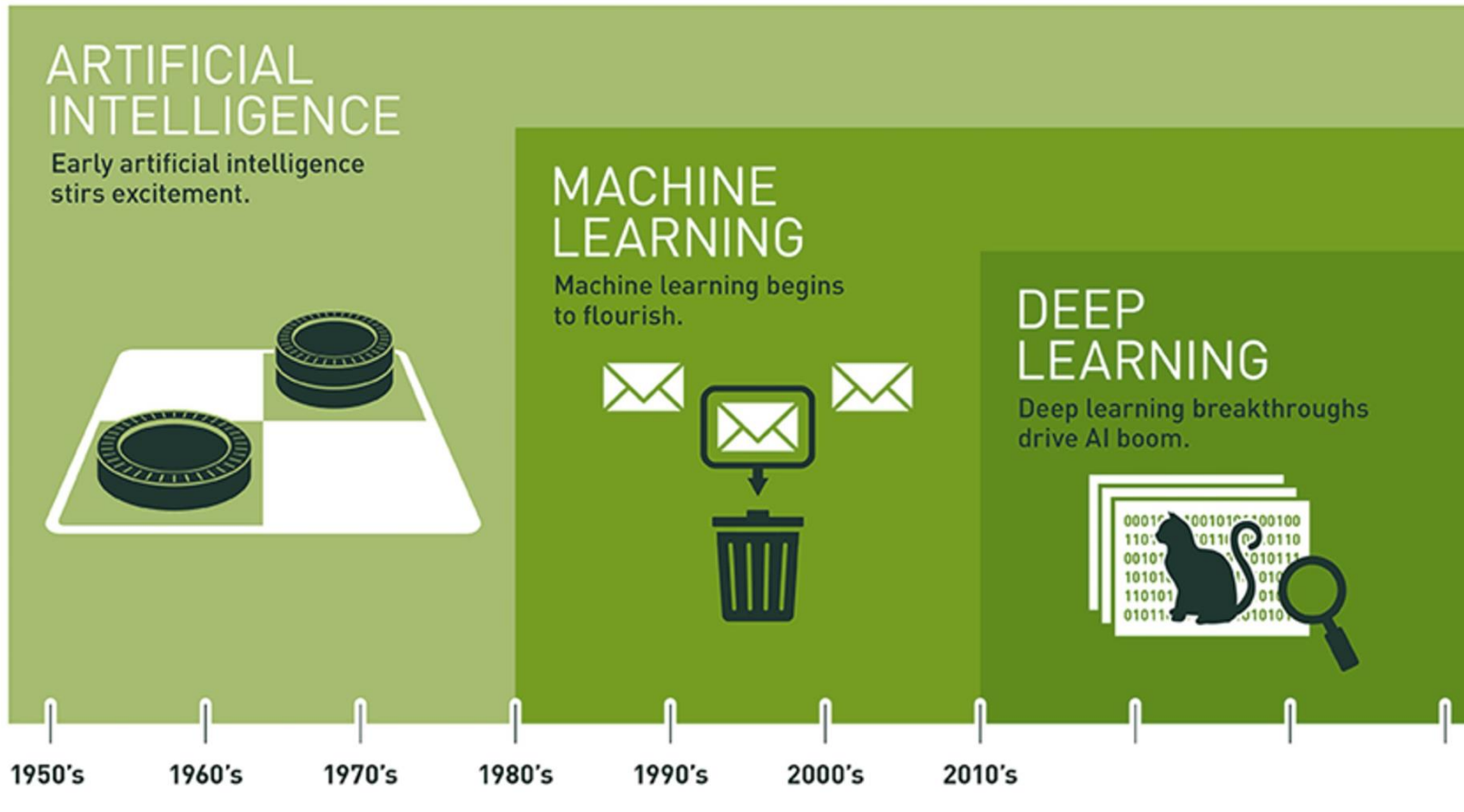




Getting Started...

Think about and **creatively** apply AI to
make the world a better place

AI is Expansive



Machine learning is the field of study that gives computers the ability to learn without being explicitly programmed.

-- Arthur Samuel (1959)

Machine learning is the science and art of programming computers so they can learn from data.

Unique Instructional Features

The Practicum AI curriculum is characterized by a **visual, story-based** approach to learning with abundant **hands-on coding** experiences

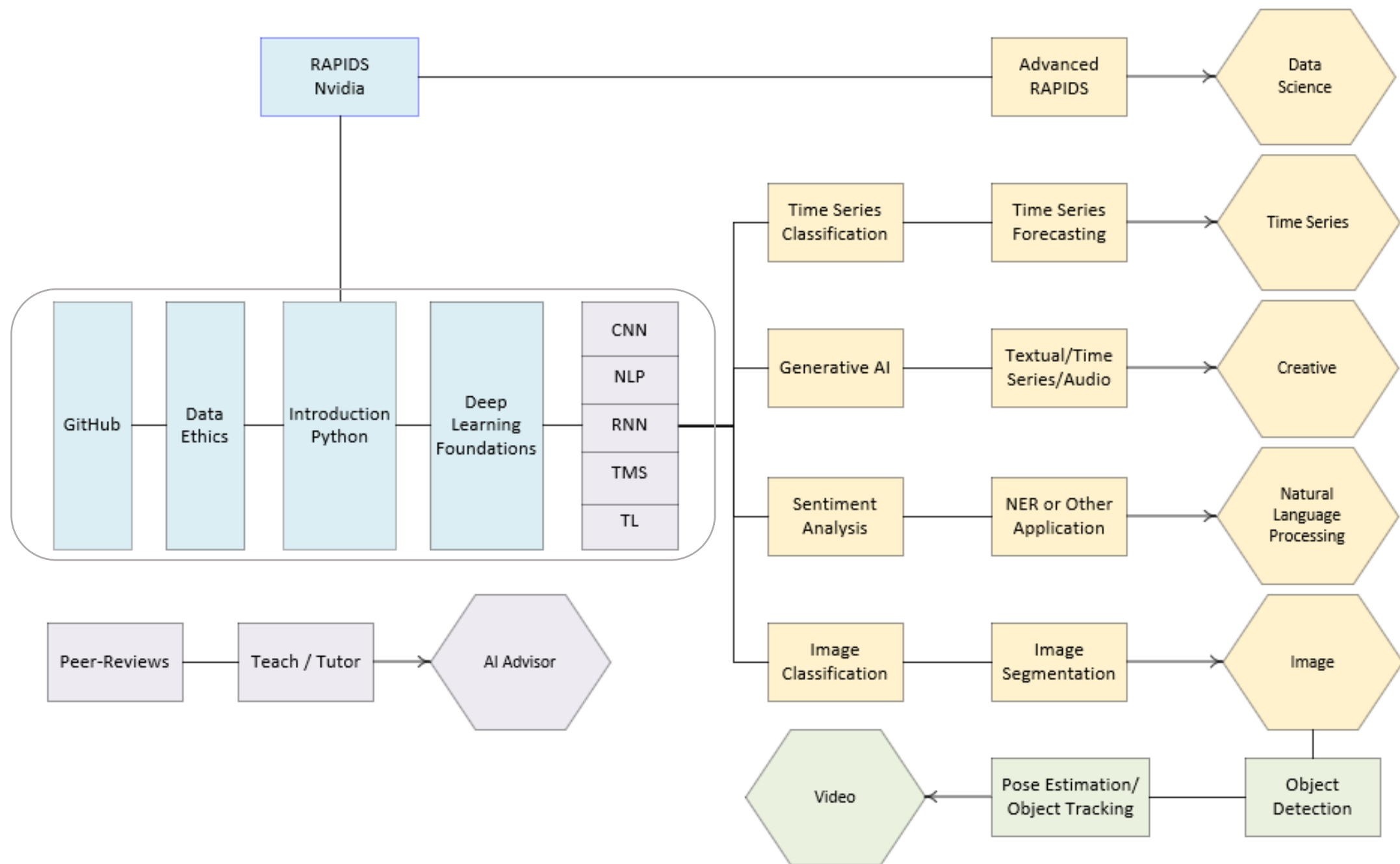
Our target audience is...

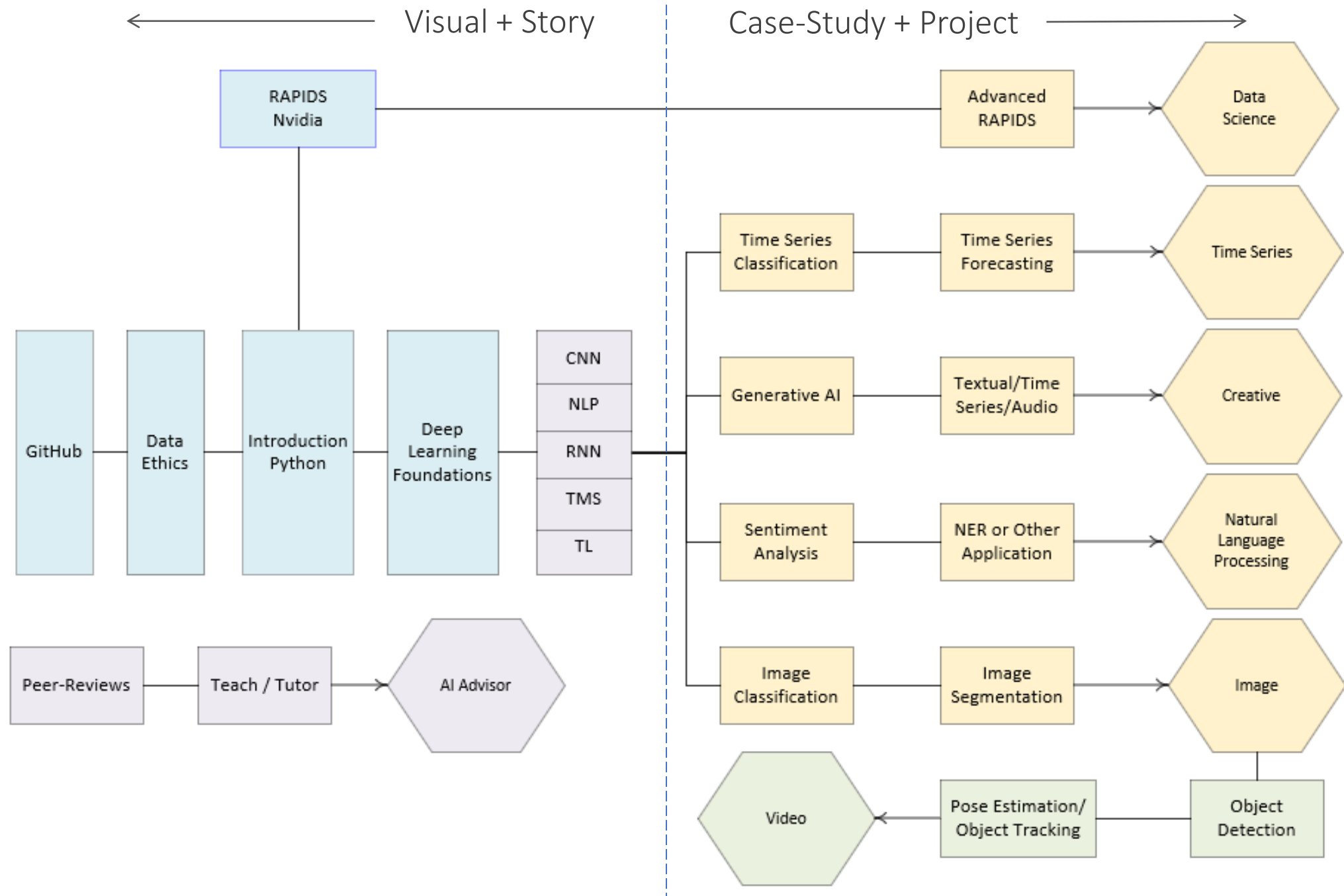
Non-technical

Curious about A.I.

Committed to **Tinker & Play** learning







| Deep Learning Foundations | Sessions |
|---------------------------------|----------|
| Getting Started | 1 |
| Data Ethics | 1 |
| Introduction to Neural Networks | 3 |
| Reproducibility | 1 |
| Convolutional Neural Networks | 2 |
| Natural Language Processing | 3 |
| Recurrent Neural Networks | 2 |

Start with your **Interests**, not the Technology

MISSION: AI

What do you want to do?

- What do you currently know about AI?
- What would you like to know about AI?
- How do you plan to use AI?
 - ✓ Answer research questions
 - ✓ Create an AI-enabled service
 - ✓ Help others learn AI



Data is the New Oil

Structured

Unstructured















01101100
01101111
01110110
01100101







Textual

Non-Textual















| Data | Question | AI Task | Methods |
|---|--|----------------|-------------|
|  Database | Is 'it' present or not? | Detection | NLP |
|  Repetitive | What type of thing is 'it'? | Classification | RNN |
|  Text | To what extent is 'it' present? | Segmentation | CNN |
|  Images | What is the likely outcome ? | Prediction | GAN |
|  Video | What will satisfy the objective? | Recommendation | RAPIDS |
|  Audio | What should 'it' do ? | Movement | Transformer |
| | What will 'it' be ? | Creation | |







| Data | Question | AI Task | Methods |
|---|---|--|---------------|
|  Database  Repetitive  Text  Images  Video  Audio | <p>Is 'it' present or not?</p> <p>What type of thing is 'it'?</p> <p>To what extent is 'it' present?</p> <p>What is the likely outcome?</p> <p>What will satisfy the objective?</p> <p>What should 'it' do?</p> <p>What will 'it' be?</p> | <p>Detection</p> <p>Classification</p> <p>Segmentation</p> <p>Prediction</p> <p>Recommendation</p> <p>Movement</p> <p>Creation</p> | <p>RAPIDS</p> |

| Data | Question | AI Task | Methods |
|---|--|----------------|----------------------------------|
|  Database | Is 'it' present or not? | Detection | NLP Transformer RNN GAN |
|  Repetitive | What type of thing is 'it'? | Classification | |
|  Text | To what extent is 'it' present? | Segmentation | |
| | What is the likely outcome ? | Prediction | |
|  Images | What will satisfy the objective? | Recommendation | |
|  Video | What should 'it' do ? | Movement | |
|  Audio | What will 'it' be ? | Creation | |

Google BERT
GPT

| Data | Question | AI Task | Methods |
|---|--|----------------|----------------|
|  Database | Is 'it' present or not? | Detection | CNN GAN |
|  Repetitive | What type of thing is 'it'? | Classification | |
|  Text | To what extent is 'it' present? | Segmentation | |
|  Images | What is the likely outcome ? | Prediction | |
|  Video | What will satisfy the objective? | Recommendation | |
|  Audio | What should 'it' do ? | Movement | |
| | What will 'it' be ? | Creation | |

| Data | Question | AI Task | Methods |
|---|--|----------------|-------------------|
|  Database | Is 'it' present or not? | Detection | CNN RNN GAN |
|  Repetitive | What type of thing is 'it'? | Classification | |
|  Text | To what extent is 'it' present? | Segmentation | |
|  Images | What is the likely outcome ? | Prediction | |
|  Video | What should 'it' do ? | Movement | |
|  Audio | What will 'it' be ? | Creation | |
| | What will satisfy the objective? | Recommendation | |

| Data | Question | AI Task | Methods |
|---|--|----------------|--|
|  Database | Is 'it' present or not? | Detection | Transformer CNN RNN GAN |
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|  Text | To what extent is 'it' present? | Segmentation | |
|  Images | What is the likely outcome ? | Prediction | |
|  Video | What will satisfy the objective? | Recommendation | |
|  Audio | What should 'it' do ? | Movement | |
| | What will 'it' be ? | Creation | |

MISSION: AI

What does your data look like?

- Structured Databases
- Repetitive Sensors, Scientific Instruments
- Textual Documents, Email, Web Content
- Non-Textual Images, Video, Audio

Application Instructions



Summary

- Start with your [interests](#), not the technology
- Definitions of AI, Machine Learning, and Deep Learning
- Practicum AI overview
- Data is the new oil
- Application

Questions



References

- Inmon, W. H. (2019). *Data architecture: A primer for the data scientist*. Cambridge, MA: Academic Press
- Wooldridge, M. (2021). *A brief history of artificial intelligence: What it is, where we are, and where we are going*. New York, NY: Flatiron Books.