

# Large Language Model Review

WeCode KC, Scientific Computing & AI w/ Python, Lab 7

# Outline

1. Warm-up: How AI is helping us talk to Animals
2. Significance of AI
3. How do Large Language Models Work?
4. Techniques
5. Ethical Considerations

# Warm Up: How AI is Helping Us Talk to Animals



Pre-questions:

- Do you recognize concepts and techniques in the video?
- What “materials” and technologies do we already have to work on this?
- What “materials” are we missing?

# Significance of AI

- Scientific
  - [The AI Scientist](#)
- Economic
  - [Software Development](#)
  - [Art](#)
  - Writing
- Cultural
- Ethical

# How do Large Language Models Work?

- NN Review
- Transformer Review
- Storing “Facts”
- Do humans understand how LLMs/AI Work?
  - People who say “Yes”
  - People who say “No”
  - What do you think?

# Techniques

- RAG = “Retrieval Augmented Generation”
- PAL = “Program Aided Logic”
- CoT = “Chain of Thought”
- Agentic = using multiple “passes” or “runs” to solve a bigger problem
- Agents with Tools

# Ethics

- What kinds of harm can generative AI cause?
- What people might be most vulnerable to this harm?
- How can we reduce harm?
- What role do humans play in reducing harm?
- What jobs and decisions should humans be in charge of?