

ATTENTION IS ALL YOU NEED

**HUMAN INTELLIGENCE, ARTIFICIAL INTELLIGENCE, AND THE TRANSFORMATION
OF CONSCIOUSNESS, SELF-CONSCIOUSNESS, AND WHAT WE SAY.**

OUTLINE

ATTENTION

What is Intelligence?

Apt Topic from Austin Jacobs

Dr. Gail Johnson, *All There: How Attentiveness Shapes Authentic Leadership*

The Paper: “Attention Is All You Need”

Inquiry



WHAT IS INTELLIGENCE?

WHAT IS INTELLIGENCE?

SIGNS OF INTELLIGENCE:

In Humans:

- Problem-solving and reasoning ability
- Learning from experience and adapting
- Abstract thinking and creativity
- Language comprehension and communication
- Emotional intelligence and social awareness
- Memory and pattern recognition
- Self-awareness and metacognition

In AIs:

- Generalization across tasks (not just memorization)
- Contextual understanding and nuance
- Coherent, relevant responses
- Handling ambiguity appropriately
- Learning efficiency (few-shot learning)
- Ability to explain reasoning

Shared indicators: Adaptability, transfer of knowledge to new domains, and handling complexity/uncertainty effectively.

**AUSTIN FOLLOWING THE
SPIRIT, AGAIN.**

AUSTIN JACOBS

APT TOPIC

Shrinking Attention Spans: Down to 47 Seconds in 2023

Microscope vs. Telescope: “Christmas is the microscope. It shows us the detail of Christ's incarnation... Epiphany, then, is the telescope. It shows us the vastness of God's plan to gather up all things in this one.”

Different Seekers of Jesus have different motives: “Jesus, hidden in plain sight, offers us the same invitation today: 'Seek me.' There's not even a requirement that your motives are pure first.”

Bruegel's Paintings as Visual Aid for Attention: “Life has become so crowded with brain rot and rage bait... I'm so distracted that I've forgotten how to look.”

***ALL THERE: HOW ATTENTIVENESS
SHAPES AUTHENTIC LEADERSHIP***

GAIL JOHNSON

GAIL JOHNSON

LEADERSHIP AND ATTENTION

Perhaps the spiritual life is less about striving and more about noticing invitations. xix

Jesus was not calling us to try harder to be more loving but to be attentive to the right things. xx

Ultimately, the ability to pay attention is at the heart of authentic and spiritual leadership. Xxiii

If we believe that God is self-revealing and personal, we will cultivate ways of staying awake to how He is revealing himself to us. 15

Before our obedience, before our service to God, and even before our worship, above all else, we *listen*. 17

“ATTENTION IS ALL YOU NEED”

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THE TRANSFORMER ARCHITECTURE

THE MACHINERY OF ATTENTION

Why is it important to pay attention to this movement?

1. Humans have learned more about themselves trying to create an artificial intelligence.
2. It gives insight into our own knowledge acquisition process.
3. Attention is not memorization, but the ability to select what is important in any conversation. Like in Bruegel's paintings, attention is required to get at the 'meaning' of the sensory acquisition, vision, text, hearing, or other sense.
4. It lets the model look at *all words in a sentence simultaneously* and figure out which words are most relevant to each other. Think of it like reading a sentence and instantly knowing that "it" refers to "the dog" mentioned earlier. (From Summary)

THE TRANSFORMER ARCHITECTURE

THE MACHINERY OF ATTENTION

“In this work we propose the *Transformer*, a model architecture eschewing recurrence and instead relying entirely on an attention mechanism to draw global dependencies between input and output. The Transformer allows for significantly more parallelization and can reach a new state of the art in translation quality after being trained for as little as twelve hours on eight P100 GPUs.” 2

“Self-attention, sometimes called intra-attention is an attention mechanism relating different positions of a single sequence in order to compute a representation of the sequence. Self-attention has been used successfully in a variety of tasks including reading comprehension, abstractive summarization, textual entailment and learning task-independent sentence representations.” 2

THE TRANSFORMER ARCHITECTURE

THE MACHINERY OF ATTENTION

It is not necessary to understand all the features in this diagram to understand that the neural network of this type decodes and encodes the input and feeds that back into the input. "At each step the model is *auto-regressive*, consuming the previously generated symbols as additional input when generating the next." 2

In other words, this model can evaluate its own results, modify the material before giving a final answer.

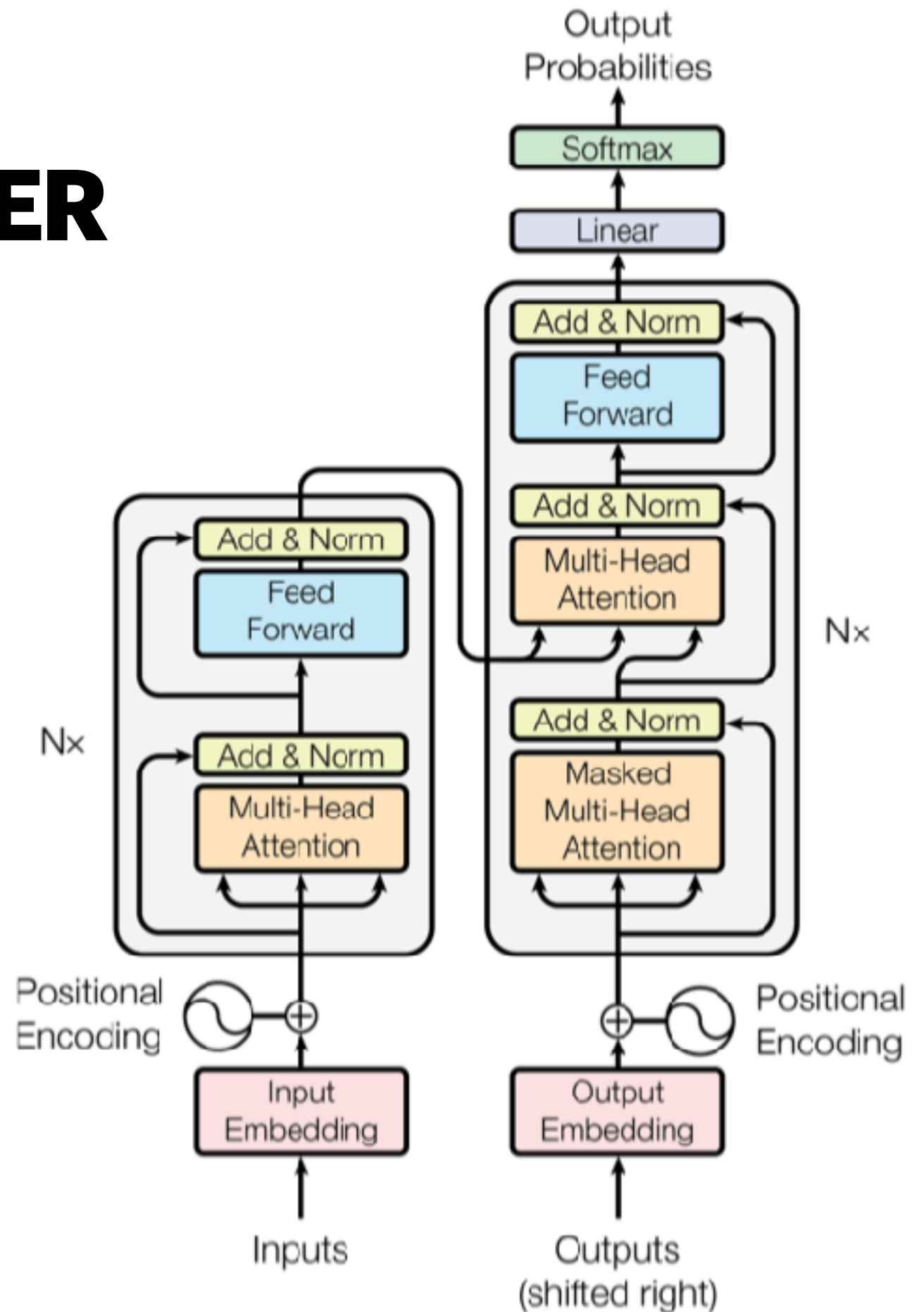


Figure 1: The Transformer - model architecture.

THE TRANSFORMER ARCHITECTURE

THE MACHINERY OF ATTENTION

“In this work, we presented the Transformer, the first sequence transduction model based entirely on *attention*, replacing the recurrent layers most commonly used in encoder-decoder architectures with multi-headed self-attention.” 10

Multi-headed self-attention allows the model to evaluate multiple projected strings of possible answers at once, in parallel.

ATTENTION IS ALL WE NEED

SUMMARY

"Attention Is All You Need" introduced the Transformer, a revolutionary AI architecture that powers modern language models like ChatGPT.

The Problem

Before this, AI models processed text sequentially (word by word), which was slow and struggled to understand relationships between distant words in a sentence.

The Solution: Attention

The key innovation is the attention mechanism - it lets the model look at all words in a sentence simultaneously and figure out which words are most relevant to each other. Think of it like reading a sentence and instantly knowing that "it" refers to "the dog" mentioned earlier.

Key Benefits

Faster training - Can process words in parallel instead of one-by-one

Better at long-range connections - Easily links related words far apart in text

State-of-the-art results - Beat all previous translation models while training much faster

Why It Matters

This paper is foundational to nearly all modern AI language systems. The Transformer architecture became the basis for GPT, BERT, and virtually every large language model today.

**WHAT DOES THIS SHOW
ABOUT OUR OWN
INTELLIGENCE?**

QUESTIONS

Our brains are neural networks as is artificial intelligence.

The Transformer Architecture provides a model for self examination on multiple contingent outcomes. When we make a decision about some future event, we evaluate the different possible outcomes and select the best (from our point of view) possible future. But this is the purely rational side of decision making.

What other features of reality must we as humans pay attention to?