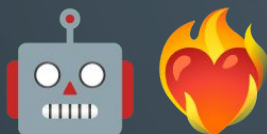




[AI-PHI] 8TH SESSION

AEMOTIONAL UNDERSTANDING

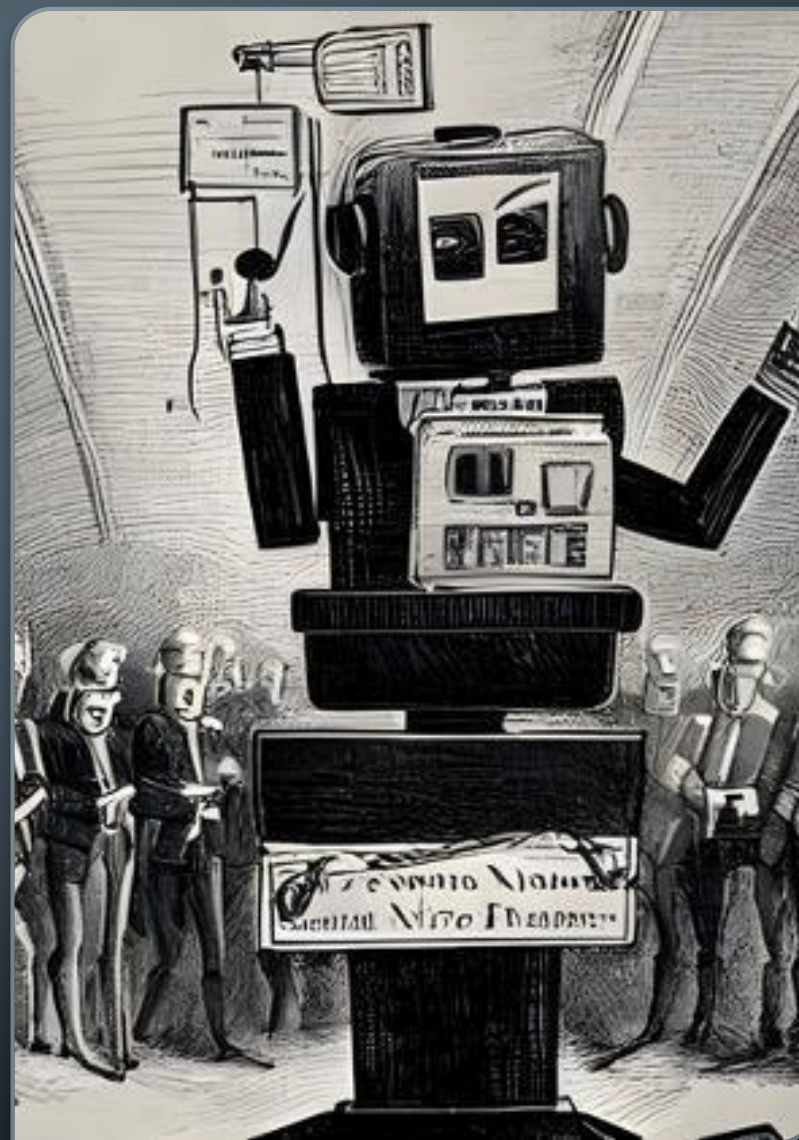


by Constant Bonnard & Gustave Cortal

18/01/2023

FORTN[AI]GHTLY NEWS

1. [Ferret MLLM](#)
2. [IMF: AI will affect 40% of jobs](#)
3. [Mamba LLM](#)
4. [OpenAI: Impossible to train models without using copyrighted data](#)



FORTN[AI]GHTLY NEWS

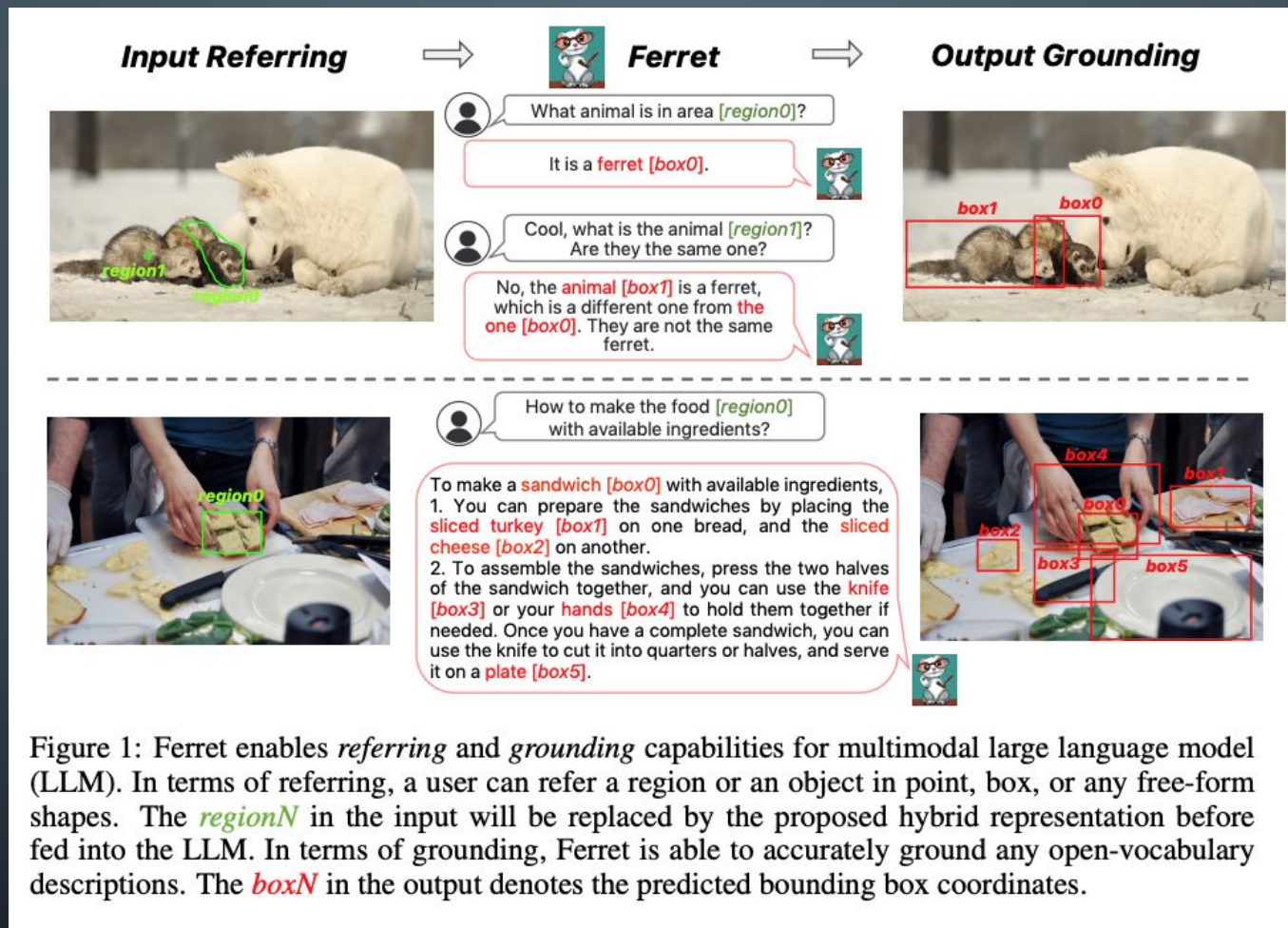


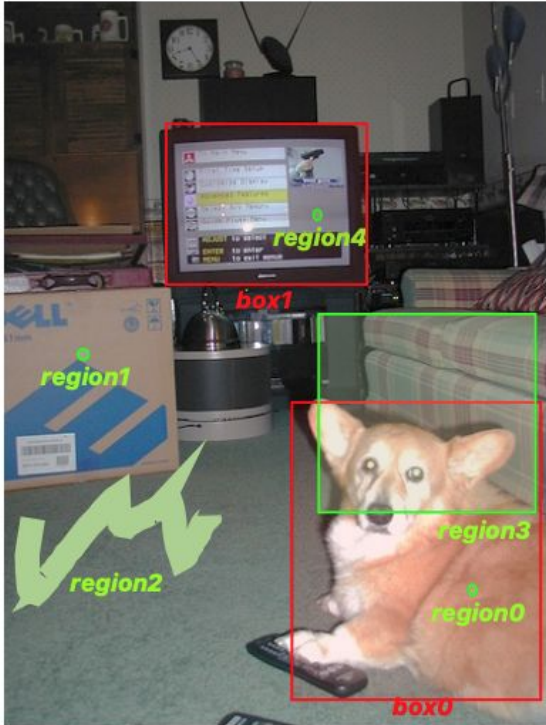
Figure 1: Ferret enables *referring* and *grounding* capabilities for multimodal large language model (LLM). In terms of referring, a user can refer a region or an object in point, box, or any free-form shapes. The *regionN* in the input will be replaced by the proposed hybrid representation before fed into the LLM. In terms of grounding, Ferret is able to accurately ground any open-vocabulary descriptions. The *boxN* in the output denotes the predicted bounding box coordinates.

Ferret: Refer and Ground Anything Anywhere at Any Granularity

FORTN[AI]GHTLY NEWS

GRIT, a **G**round-and-**R**efer Instruction-Tuning dataset with 1.1M samples

Object: Visual Genome RefCOCOs Flickr30k	Input What is the class of object [region0]?	Output It's a corgi.	↔
	Input Where is the corgi?	Output corgi [box0].	
Relationship: Visual Genome	Input Can you figure out the geometric relation of object [region1] and object [region2]?	Output Box on the floor.	↔
	Input Describe the area [region3] in short phrase.	Output In short, a dog sit near a sofa.	
Detail + Reasoning: GPT Generated data	Input Do you know when the object [region4] was invented?	Output The invention of TV [box1] is credit to John Logie Baird. He invented in the early 1920s.	↔
	Input Is there a cat in the image?	Output No, but there is a dog [box0] in the image.	



Ferret: Refer and Ground Anything Anywhere at Any Granularity

FORTN[AI]GHTLY NEWS

Hybrid Region Representation

Region Name + [Coordinates] + <feature>



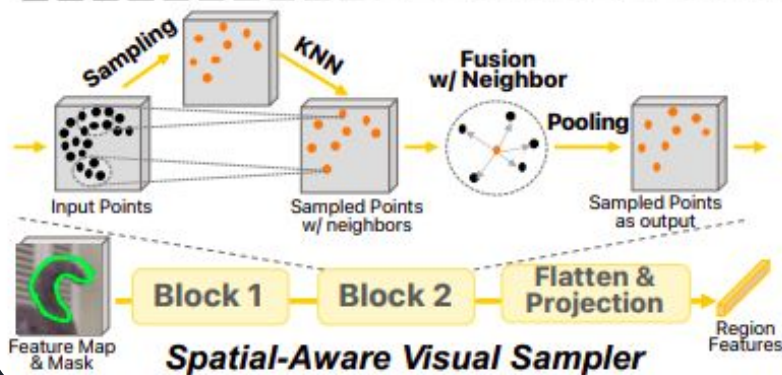
Point



Box



Free-form Shape
(Sketch, Scribble, polygons)

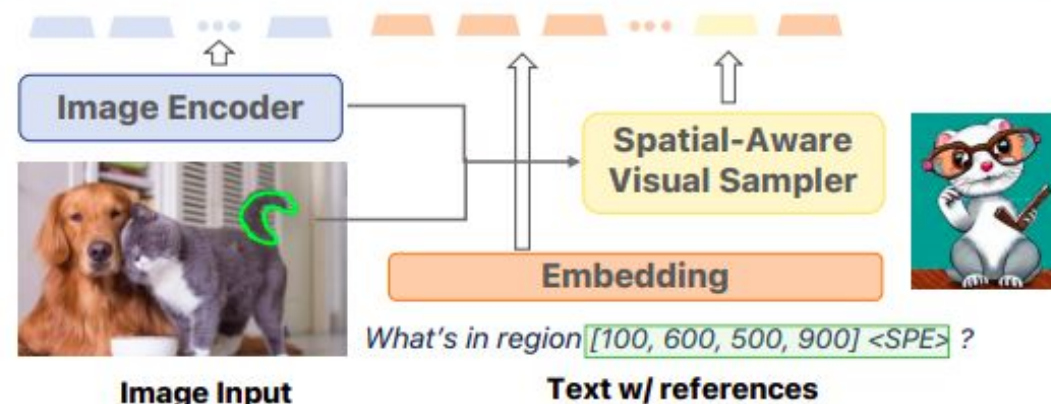


Ferret Model

It's a cat tail [80, 590, 450, 920]



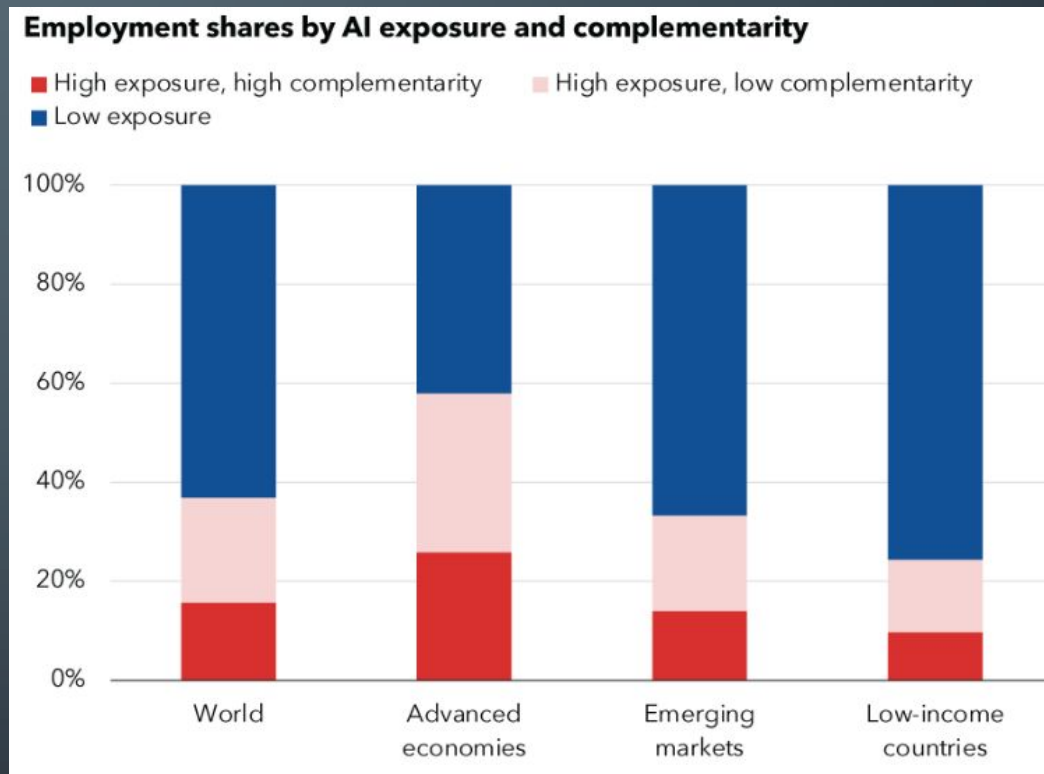
Large Language Model



Ferret: Refer and Ground Anything Anywhere at Any Granularity

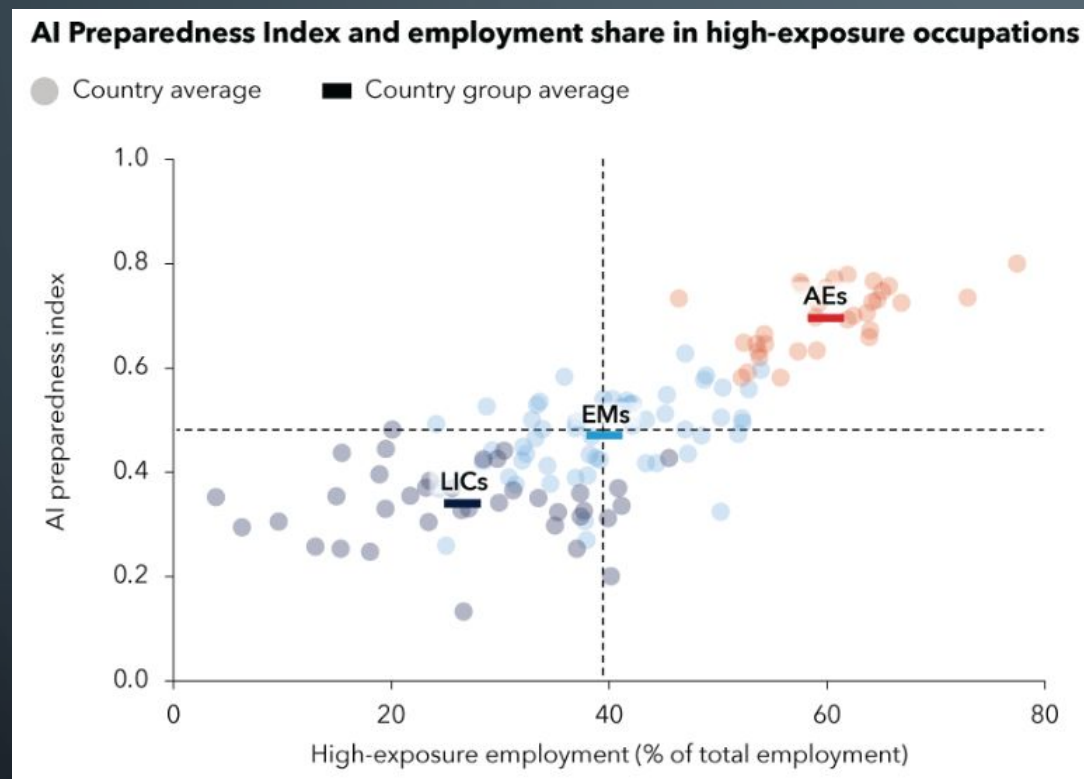
FORTN[AI]GHTLY NEWS

IMF: AI will affect almost 40 percent of jobs around the world, **replacing** (completely or lower demand) some and **complementing** others.



IMF: AI will affect almost 40 percent of jobs around the world

FORTNIGHTLY NEWS



Wealthier economies, including advanced and some emerging market economies, tend to be better equipped for AI adoption than low-income countries.

IMF: AI will affect almost 40 percent of jobs around the world

FORTN[AI]GHTLY NEWS

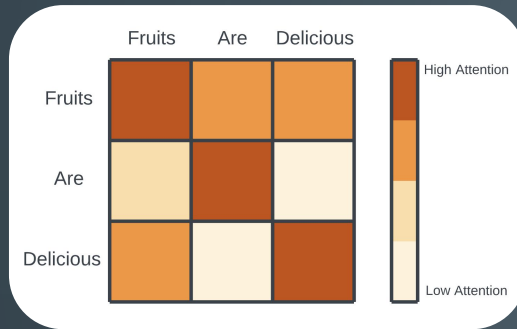
Polarization within income brackets, with workers who can harness AI seeing an increase in their productivity and wages. For example, younger workers can enhance their productivity more quickly. **Increased Inequality.**

Many countries don't have the infrastructure or skilled workforces to harness the benefits of AI. **Increased inequality.**

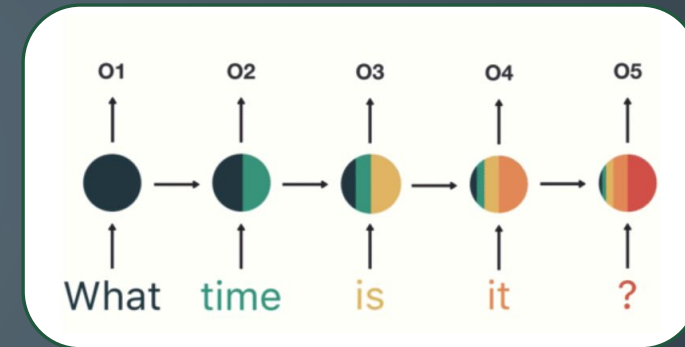
If AI significantly complements higher-income workers, it may lead to a disproportionate increase in their labor income. **Increased inequality.**

Recommendation: It is crucial for countries to establish comprehensive social safety nets and offer retraining programs for vulnerable workers.

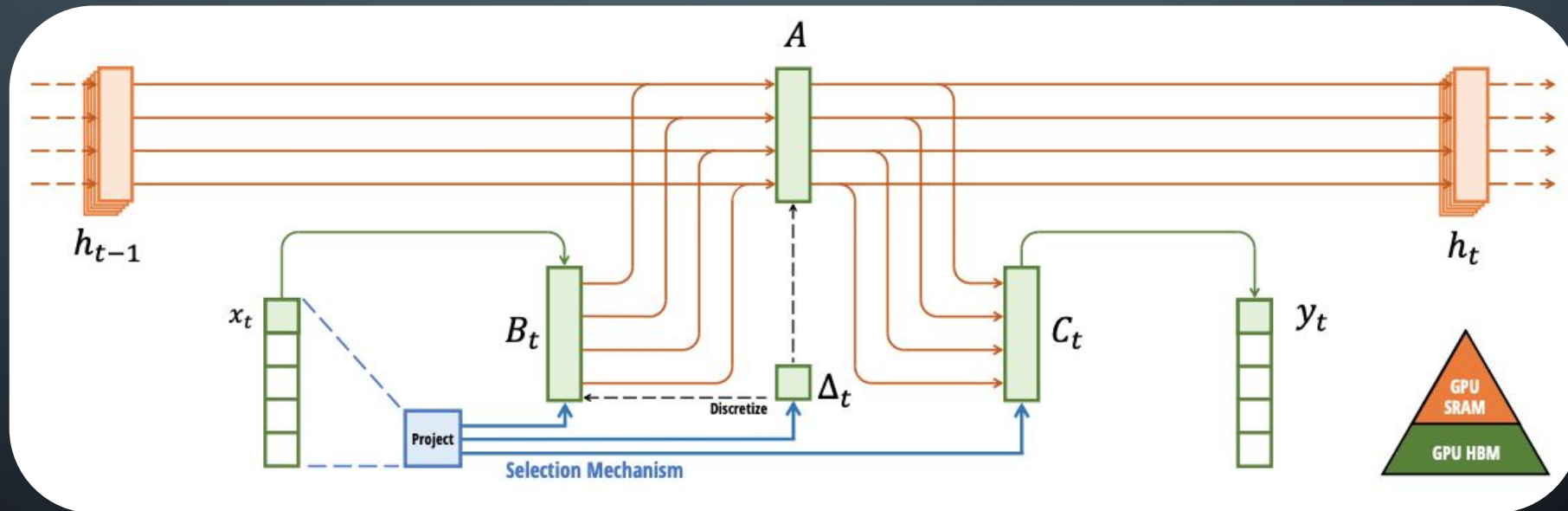
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Quadratic Attention



RNN

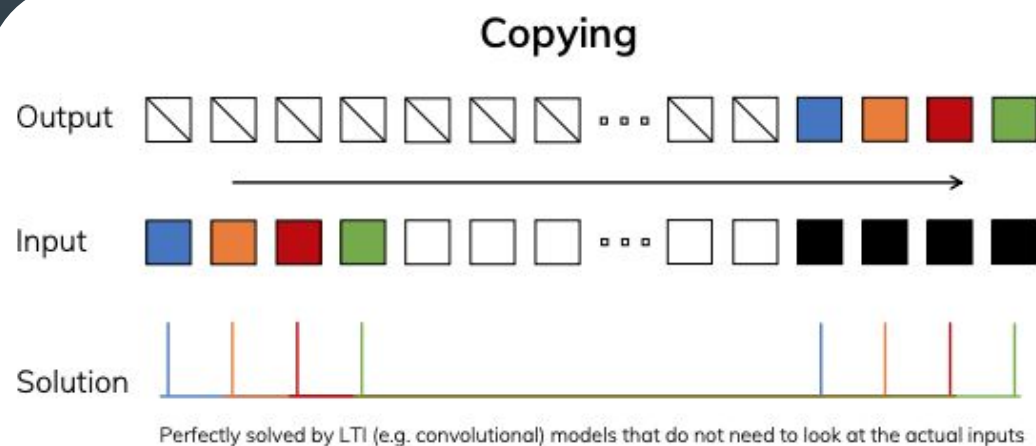


Selective Structured State Space Model

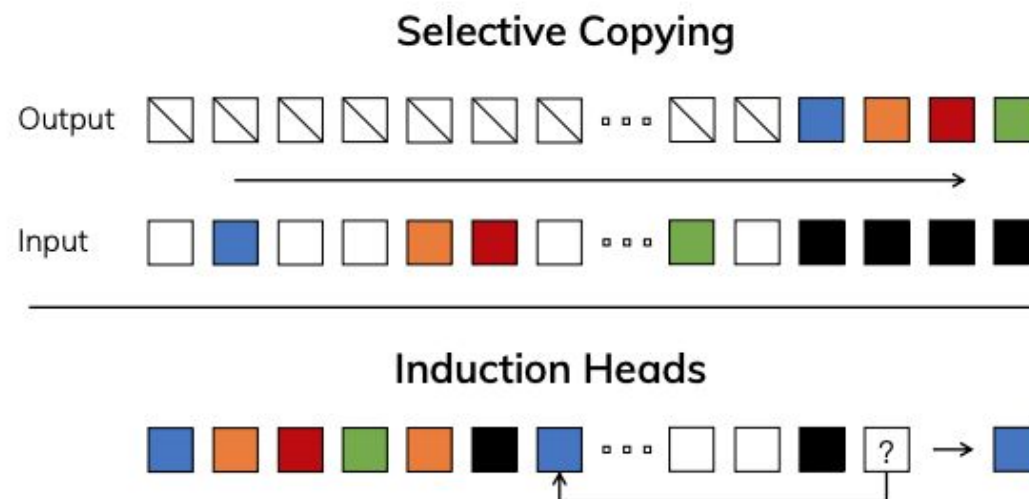
Mamba: Linear-Time Sequence Modeling with Selective State Spaces

FORTN[AI]GHTLY NEWS

Non-selective is enough



Requires Selective Input



E.g. predict 'Potter' given 'Harry'

Mamba: Linear-Time Sequence Modeling with Selective State Spaces

FORTNIGHTLY NEWS

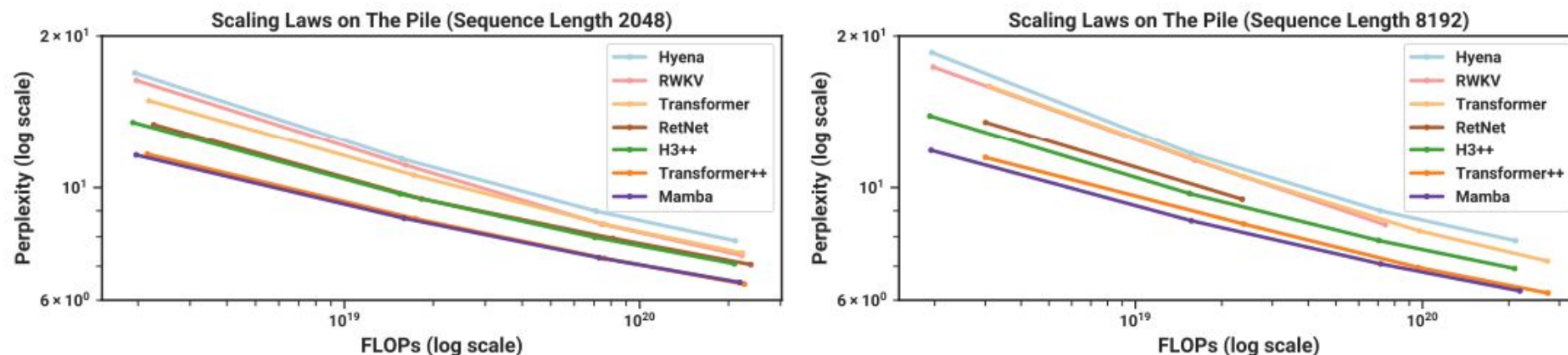


Figure 4: (**Scaling Laws.**) Models of size $\approx 125M$ to $\approx 1.3B$ parameters, trained on the Pile. Mamba scales better than all other attention-free models and is the first to match the performance of a very strong “Transformer++” recipe that has now become standard, particularly as the sequence length grows.

Linear scaling with input (instead of quadratic with attention)

5x inference speed up with hardware-aware recurrence calculations

Mamba: Linear-Time Sequence Modeling with Selective State Spaces

FORTN[AI]GHTLY NEWS

Submitted to House of Lords Communications and Digital Select Committee inquiry: Large language models

"copyright today covers virtually every sort of human expression including blog posts, photographs, forum posts, scraps of software code, and government documents—it would be impossible to train today's leading AI models without using copyrighted materials"

"we've led on websites' ability to exclude their content and we provide an easy way to disallow for our "GPTBot" web crawler to access a site, as well as an opt-out process for creators who want to exclude their images from future DALL·E training datasets"

"find mutually beneficial arrangements to gain access to materials that are otherwise inaccessible, and also to display content in ways that go beyond what copyright law otherwise allows"

OpenAI: Impossible to train language models using non-copyrighted data

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FORTN[AI]GHTLY NEWS



Gary Marcus ✓
@GaryMarcus

Rough Translation: We won't get fabulously rich if you don't let us steal, so please don't make stealing a crime!

Don't make us pay *licensing* fees, either!

Sure Netflix might pay billions a year in licensing fees, but **we** shouldn't have to!

More money for us, moar!



Leighton Andrews 🇨🇪 🇺🇦 @LeightonAndrews · 8 Jan

OpenAI lobbying for copyright law revision in the UK @GaryMarcus @jason_kint

09:00 Mon 8 Jan

< Editions | The Daily Telegraph

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LEAD STORY

OpenAI calls for copyright exemption to save ChatGPT

OPINION ARTIFICIAL INTELLIGENCE

Generative AI Has a Visual Plagiarism Problem > Experiments with Midjourney and DALL-E 3 show a copyright minefield

BY GARY MARCUS REID SOUTHEN | 06 JAN 2024 | 19 MIN READ



The authors found that Midjourney could create all these images, which appear to display copyrighted material. GARY MARCUS AND REID SOUTHEN VIA MIDJOURNEY

OpenAI: Impossible to train language models using non-copyrighted data