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A02 Recent Advancements and Future Trends in AI

New AI developments of July-September 2024

Open-Source Models: LLaMA 3 and Mistral 7B

LLaMA 3:

Meta’s biggest and newest open source LLM yet.

Intended for concept availability to any and all researchers and developers.

Couples the power of AI with open-sourced research and sparks collaboration.

Mistral 7B:

Free to use neural net model for artificial intelligence that has been finely tuned for speed and effectiveness.

Runs with low parameters square measure willful constructing of restraint usage.

Anthropic's Claude Updates

Claude 3.5 Sonnet:

Details about vision aid options as well as coding languages’ improvement.

Claude 4 Preview:

Introducing improvements in the use of multimodal AI.

The kind that can also incorporate text, image, audio for enhanced performance and functionality.

DeepMind’s Gemini 1.5 Pro

It is a multistack multimodal AI system designed for processing of big data of different nature.

Works in addition to existing solutions for image identification and textual description.

Recent Trends and Development in Artificial Intelligence

Progressing trends in Machine learning as well as in Deep Learning

Transformer Architectures:

More innovations for the future advancement of big-scale AI models.

Multimodal AI Models:

As a result, the kinds of data that can be used include text data, image data and audio data with the aim of improving performance.

Efficient Model Training:

New approaches toward cutting down time to train and minimize computational expenses.

Advancement in Natural Language Processing (NLP)

The great improvement of the multilingual and cross-lingual facilities.

Some established principles for handling biased nature of computational models in Natural Processing Language.

Computer Vision and Robotics

Applications:

Advanced generation and recognition of images.

Use of Artificial Intelligence in making of robots to do automated and precise jobs.

In robotics and self-driving cars, drones, and similar appliances.

Examples of AI in Industries

Healthcare: Let us examine diagnostics first, followed by those of the individualized medicine and drugs.

Finance: Fraud detection application of Machine Learning, Algorithmic Trading System, Risk Management System etc.

Manufacturing: Smarter manufacturing, condition-based monitoring and reliability improvement.

Future Trends in AI

Expected Trajectories

There is an exponential growth in the level of Artificial general intelligence (AGI).

Possible increased use of the multiple-mode AI systems and solutions, including both consumer goods and industrial applications.

More dependence of society on AI in performing of numerous labor-saving operations.

Preparing for AI Integration

Preparing talent by linking human resource development with artificial intelligence.

How to build ethics to navigate the social effects of AI.

Regulatory Landscape: Comparing Australia and the European Union (EU)

Australia

One of the components that can be remarked with ease is the focus on the Pro-Innovation AI policies put forward by the government.

No federal AI law has been passed in the United States yet; only ethical principles and transparency are used.

European Union

EU AI Act:

Divides AI applications according to the risk levels.

Constitutes expanded honesty, elimination of prejudice, and responsibility.

Sets tough legal requirements on safety for high risk AI applications.

Addressing the Emergence and Growth Rate of AI

Challenges:

This talk is about how to resolve such biases in large models.

Guaranteeing AI is ethical is quite necessary if we are to create systems that meet the needs of society.

Solutions:

Free cooperation between governments and technology industries.

Flexible structures and institutional changes taken at different intervals with reference to changes in new technologies to meet the requirements of business practices.

ELSC

Bias and Transparency:

Biases in the development of the artificial intelligence models.

Addressing the problem of accountability in artificial intelligence decision-making.

Privacy Concerns:

Protection and safety of data in use of artificial intelligence.

Socio-Economic Impacts:

Understanding the impact of automation to jobs and workforce.

Key Takeaways

AI is progressing very fast with advanced features where major developments of open source and multimodal systems were observed.

AI regulation must be anchored on the ethical, legal, and sociological bends to promote responsibility in AI.

Widespread technological paradigms such as the EU AI Act seek to mitigate the established difficulties associated with the novel advancement of artificial intelligence.