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Technical Activities: International Conference Organization

We are organizing a variety of activities related to the theme and different aspects of hyper-intelligence. A series of international conferences that HITC is actively involved in this year include:

- IEEE Smart World Congress 2023. 28-31 Aug - Portsmouth, UK. [link](#);
- The 20th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2023). 28-31 Aug - Portsmouth, UK. [link](#);
- The 20th IEEE Autonomous and Trusted Vehicles Conference (ATC 2023). 28-31 Aug - Portsmouth, UK. [link](#);
- The 23rd IEEE International Conference on Scalable Computing and Communications (ScalCom 2023). 28-31 Aug - Portsmouth, UK. [link](#);
- The 2023 IEEE International Conference on Digital Twin (Digital Twin 2023). 28-31 Aug - Portsmouth, UK. [link](#);
- The 9th IEEE International Conference on Privacy Computing and Data Security (PCDS 2023). 28-31 Aug - Portsmouth, UK. [link](#);
- The 2023 IEEE International Conference on Metaverse (Metaverse 2023). 28-31 Aug - Portsmouth, UK. [link](#);
- The International Conference on Embedded Wireless Systems and Networks (EWSN 2023). 25-27 Sep 2023 - Rende, Italy. [link](#);
- International Conference on Systems, Man, and Cybernetics (SMC 2023). 1-4 Oct - Maui, Hawaii. [link](#);
- The 5th International Conference on Blockchain Computing and Applications (BCCA 2023). 24-26 Oct 2023 - Kuwait City, Kuwait. [link](#);

- The 8th IEEE Cyber Science and Technology Congress (CyberSciTech 2023). 13-17 Nov 2023 - Abu Dhabi, UAE. [link](#);
- The 21st IEEE International Conference on Pervasive Intelligence and Computing (PICom 2023). 13-17 Nov 2023 - Abu Dhabi, UAE. [link](#);
- The 9th IEEE International Conference on Cloud and Big Data Computing (CBDDCom 2023). 13-17 Nov 2023 - Abu Dhabi, UAE. [link](#);
- The 21st IEEE International Conference on Dependable, Autonomic & Secure Computing (DASC 2023). 13-17 Nov 2023 - Abu Dhabi, UAE. [link](#);
- The 2023 IEEE Cybermatics Congress (Cybermatics 2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 9th IEEE International Conference on Smart Data (SmartData 2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 16th IEEE Conference on Internet of Things Computing (iThings-2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 16th IEEE International Conf. on Cyber, Physical and Social Computing (CPSCom 2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 19th IEEE International Conference on Green Computing and Communications (GreenCom 2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 6th IEEE International Conference on Blockchain (Blockchain 2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 2023 IEEE International Conference on Advanced Cloud and Big Data (CBD-2023). 15-18 Dec 2023 - Ocean Flower Island, Hainan, China. [link](#);
- The 4th IEEE International Conference on Human-Machine Systems (IEEE ICHMS 2024). May 15-17, 2024 - Toronto, Ontario, Canada. [link](#);

During these conferences, several famous scientists and distinguished researchers will be invited to give keynote speeches, to share their latest technical achievements, specific working experience, distinctive life perception, regarding key aspects closely related to hyper-intelligence in both academic and industrial fields.

Technical Activities: Workshops and Special Sessions Organization

- The Seventh IEEE International Workshop on the Security, Privacy, and Digital Forensics of Mobile Systems and Networks (MobiSec 2023). [link](#);
- First IEEE International Workshop on Security, Privacy, and Trust for Connected Autonomous Vehicles (IEEE MOSEC 2023). [link](#);

- The 2nd Workshop on DIStributed COLlective Intelligence (DISCOLI 2023). [link](#);
- The 1st International Workshop on Machine Learning for Autonomic System Operation in the Device-Edge-Cloud Continuum (MLSysOps 2023). [link](#);
- The 2nd International Workshop on Hybrid Internet of Everything Models for Industry 5.0 (HIEMI 2023). [link](#);
- The 2nd Workshop on Security and Privacy in Connected Embedded Systems (SPICES 2023). [link](#);
- The 1st International Workshop on Trusted and Reliable Embedded Wireless Environments (TREWE 2023). [link](#);
- Workshop on Attacks and Software Protection at ESORICS 2023. [link](#).
- Special Session 4: Data Fusion for Industry 5.0 at the 26th International Conference on Information Fusion (FUSION 2023). [link](#);
- Track: Quality Aspects of Digital Transformation at the 16th International Conference on the Quality of Information and Communications Technology (QUATIC 2023). [link](#).

Journals and Special Issues

It is our great honor that our special issue proposals have been approved in several journals:

- *Journal of Systems Architecture*.
Special issue on Distributed Learning and Blockchain Enabled Infrastructures for Next Generation of Big Data Driven Cyber-Physical Systems. [link](#).
Guest Editors: Xiaokang Zhou, Giancarlo Fortino, Carson Leung, Mohammad Hammoudeh.
- *IEEE Transactions on Consumer Electronics*.
Special Section on Smart Data Driven Modeling for Emerging Customer Applications in Mobile Edge Computing. [link](#).
Guest Editors: Xiaokang Zhou, Flavia C. Delicato, Kevin Wang, Vincenzo Piuri.
- *MDPI Applied Sciences*
Special issue on New Challenges in Security, Privacy and Trust for Mobile Systems and Networks. [link](#).
Guest Editors: Wenjia Li, Lei Chen, Yun Lin.

Hyper-Intelligence News

Some HI-related news are posted on the HITC website:

- *ChatGPT is fun, but not an author.* [link](#)
In less than 2 months, the artificial intelligence (AI) program ChatGPT has become a cultural sensation. It is freely accessible through a web portal created by the tool's developer, OpenAI. The program—which automatically creates text based on written

prompts—is so popular that it’s likely to be “at capacity right now” if you attempt to use it. When you do get through, ChatGPT provides endless entertainment...

- *ChatGPT Gets Fresh Competition.* [link](#)
Just over two months ago, OpenAI released ChatGPT to the public, instantly thrusting the A.I.-powered chatbot into the center of mainstream discourse, with debates about how it could transform business, education and more. (It also spurred Microsoft to invest \$10 billion in OpenAI.) Now Google and the Chinese tech giant Baidu have unveiled their own chatbots, hoping to convince the world of their efforts in so-called generative A.I. — tech that can spout off conversational text, make images and more — are just as ready for prime time...
- *What ChatGPT and generative AI mean for science.* [link](#)
In December, computational biologists Casey Greene and Milton Pividori embarked on an unusual experiment: they asked an assistant who was not a scientist to help them improve three of their research papers. Their assiduous aide suggested revisions to sections of documents in seconds; each manuscript took about five minutes to review. In one biology manuscript, their helper even spotted a mistake in a reference to an equation. The trial didn’t always run smoothly, but the final manuscripts were easier to read — and the fees were modest, at less than US\$0.50 per document.

The Emergence of ChatGPT and other Large Language Models

As the emergence of ChatGPT and other Large Language Models (LLMs) have drawn massive attention recently, we asked ChatGPT 3.5 to write about these new emerging technologies. Below is what we heard from ChatGPT.

The Emergence of ChatGPT and other Large Language Models

The emergence of ChatGPT and other large language models represents a significant milestone in the field of artificial intelligence and natural language processing. These models are built on deep learning techniques, particularly variants of the Transformer architecture, and have the capacity to understand and generate human-like text at an unprecedented scale. Here are some key points regarding the emergence of such models:

1. **Scale and Complexity:** ChatGPT and similar models, like GPT-3, are characterized by their immense scale, often comprising hundreds of billions of parameters. This scale allows them to capture and generate text that closely resembles human language, making them valuable for a wide range of applications.
2. **Natural Language Understanding:** These models excel at natural language understanding. They can comprehend and respond to a wide array of text inputs, making them useful for chatbots, virtual assistants, and customer support applications.
3. **Text Generation:** They are also adept at text generation, enabling them to produce coherent and contextually relevant responses. This capability has applications in content generation, creative writing, and more.

4. **Transfer Learning:** One of the key advantages of large language models is their ability to perform transfer learning. They can be pre-trained on vast amounts of text data and then fine-tuned for specific tasks, making them versatile and adaptable to various applications.
5. **Applications:** These models have found applications in diverse fields such as chatbots, virtual assistants, content generation, language translation, sentiment analysis, and even medical diagnosis, among others.
6. **Ethical and Bias Concerns:** The emergence of these models has raised concerns about ethical issues and biases in AI-generated content. Ensuring that AI systems produce fair and unbiased responses is a significant challenge.
7. **Computational Resources:** Developing and training such large models requires substantial computational resources, which can limit access to this technology for smaller organizations and researchers.
8. **Research and Development:** The development of large language models is an ongoing area of research, with efforts focused on improving their capabilities, efficiency, and ethical considerations.
9. **Alternatives:** While large language models like ChatGPT have garnered attention, there is ongoing research into alternative approaches, such as smaller and more efficient models, to address some of the limitations associated with large-scale AI systems.
10. **Human-AI Collaboration:** The emergence of AI models like ChatGPT highlights the potential for collaboration between humans and AI. These tools can assist, augment, and automate certain tasks, but human oversight and guidance are often crucial.

Overall, the emergence of ChatGPT and similar models represents a major leap forward in natural language understanding and generation, opening up new possibilities and challenges in the AI landscape. Ongoing research and responsible development will play a vital role in harnessing the full potential of these technologies while addressing their ethical and societal implications.

AI-powered tools based on LLMs

1. AI-powered tools based on Large Language Models (LLMs) have become increasingly prevalent and versatile across various industries and applications. These tools leverage the capabilities of LLMs, such as GPT-3 and its successors, to perform a wide range of tasks that involve natural language understanding and generation. Here are some examples of AI-powered tools based on LLMs:
2. **Chatbots and Virtual Assistants:** LLMs are used to create chatbots and virtual assistants capable of engaging in human-like conversations. These tools find applications in customer support, website chat widgets, and virtual customer service representatives.

3. **Content Generation:** LLMs are employed to automate content creation, including generating articles, product descriptions, marketing copy, and social media posts. They save time and resources for content producers.
4. **Translation Services:** LLMs can be used to develop real-time language translation services that translate text or speech from one language to another with high accuracy.
5. **Sentiment Analysis:** LLMs excel at sentiment analysis, helping businesses analyze customer feedback, reviews, and social media comments to gauge public sentiment toward products, services, or brands.
6. **Text Summarization:** LLMs can automatically summarize lengthy documents, research papers, or news articles, making it easier for users to extract key information quickly.
7. **Email Response Suggestions:** AI-powered email clients use LLMs to suggest responses to emails, improving productivity by helping users compose replies more efficiently.
8. **Code Generation:** LLMs can assist programmers by generating code snippets based on natural language descriptions of the desired functionality, making coding more accessible to non-programmers.
9. **Medical Documentation:** In healthcare, LLMs are used to transcribe medical records, generate patient reports, and assist in clinical documentation.
10. **Legal Assistance:** LLMs can review legal documents, generate legal contracts, and offer legal advice based on input from legal professionals.
11. **Educational Tools:** AI-powered educational platforms use LLMs to provide personalized tutoring, answer students' questions, and generate educational content.
12. **Financial Analysis:** LLMs are used to analyze financial reports, generate investment recommendations, and provide insights into market trends.
13. **Creative Writing:** LLMs can assist creative writers by generating story ideas, plot outlines, or even entire pieces of creative writing.
14. **Accessibility Tools:** LLMs can be integrated into accessibility tools to help individuals with disabilities interact with digital content more effectively, such as generating audio descriptions of images or providing natural language explanations.
15. **Knowledge Base Management:** Organizations use LLMs to automate the creation and maintenance of knowledge bases, making it easier to provide information to customers and employees.
16. **Social Media Management:** LLMs can assist social media managers by suggesting post captions, analyzing engagement metrics, and identifying trends.

17. Crisis Communication: During crises or emergencies, LLMs can help organizations respond to inquiries and provide information to the public more efficiently.
18. These are just a few examples of how AI-powered tools based on Large Language Models have been applied to various domains. The versatility and natural language understanding capabilities of LLMs make them valuable assets for automating and enhancing numerous aspects of communication, content generation, and decision-making processes.

Conclusion

The rise of AI-powered tools like ChatGPT, New Bing, and others has transformed the way we interact with technology and access information. By leveraging the power of NLP and other AI techniques, these tools have created new possibilities and opportunities in various sectors, from customer support and content creation to search and entertainment. As AI continues to advance, we can expect even more innovative and impactful tools to emerge in the future.

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We sincerely welcome more people to join the new TC for a collaborative effort and exploration of the novel but challenging field in Hyper-Intelligence. Please feel free to promote, and invite your colleagues and friends who are interested in it to apply to join HITC by: https://iee-hyperintelligence.org/join_us