

Next-Level Science using AI Assistants

Report of Contributions

Contribution ID: 9

Type: **not specified**

Introduction to Large Language Models

Thursday 27 June 2024 09:00 (1h 30m)

This introductory module will provide scientists with a fundamental understanding of large language models such as GPT and how they work. Given the increasing integration of AI in scientific research, understanding the underpinnings of such models and recognizing their pitfalls will enable participants to leverage their capabilities and mitigate limitations.

1. What is “GPT”? An explanation and overview of “Generative Pretrained Transformers”.
2. The architecture of large language models: Understanding transformer networks.
3. Mechanism of operation: How does GPT understand and generate text?
4. Strengths and limitations of large language models in scientific research.
5. Pitfalls to avoid when using large language models, and how to manage biases in AI.

Session Classification: Live Session

Contribution ID: 16

Type: **not specified**

From Zero to Programming using AI-Tools

Thursday 11 July 2024 09:00 (1h 30m)

AI is not only for programmers. This module is designed to empower scientists with no programming background to use AI tools effectively. It will use AI-tools to take you from nothing to a running implementation. The major challenge is changing the mindset towards “everything is possible”.

1. Introduction to the “twoTools” approach to programming with AI.
2. Introduction to the disruptive mindset of programming with AI tools.
3. Hands-on exercises on using AI to write simple code.
4. Troubleshooting common issues using AI.
5. Optional: Q&A session with expert AI programmers.

Session Classification: Live Session

Contribution ID: 19

Type: **not specified**

How to use Large Language Models

Thursday 27 June 2024 10:30 (1h 30m)

Building on the knowledge of large language models, this module will dive into practical applications, demonstrating how scientists can use AI tools for text production and analysis. Most important is the introduction of participants to advanced prompting techniques, which are critical for obtaining desired outputs.

1. Practical uses of large language models in life sciences.
2. Best practices for texting with AI models.
3. Techniques for effective text analysis.
4. Mastering the art of prompting for better outcomes.
5. Interactive session: Hands-on prompting exercise with AI models.

Session Classification: Live Session

Contribution ID: 20

Type: **not specified**

Literature review

Wednesday 3 July 2024 13:30 (1h 30m)

AI is revolutionizing literature review and makes it time-effective and more objective because more literature can be assessed at once. This module explores how AI can be used to enhance literature review processes, ultimately aiding in more thorough and efficient research.

1. The role of AI in literature reviews.
2. Techniques for AI-powered text mining in scientific literature.
3. Tools and resources for AI-based literature reviews.
4. Case studies of successful AI application in literature review.
5. Hands-on session: Using AI tools for literature search and review.

Session Classification: Live Session

Contribution ID: 21

Type: **not specified**

Brainstorming and Structuring

Wednesday 3 July 2024 15:00 (1h 30m)

AI can be used for comprehensive brainstorming and can provide structure, helping researchers develop innovative ideas and frameworks. This module covers AI's role in idea generation and organization, showcasing how it can inspire creativity and promote logical thinking in scientific research.

1. Introduction to AI-aided brainstorming.
2. AI tools for idea generation and mind-mapping.
3. How AI can help structure and organize thoughts.
4. Techniques for extracting value from AI-generated content.
5. Hands-on session: Engaging with AI for brainstorming and idea organization.

Session Classification: Live Session

Contribution ID: 22

Type: **not specified**

Science Communication with AI

Thursday 11 July 2024 10:30 (1h 30m)

This module delves into the application of artificial intelligence to significantly simplify science communication. Given the critical importance of clearly presenting complex scientific concepts, AI serves as an essential tool in achieving this objective. Participants will explore generative AI's capabilities to create texts and visuals that enhance the dissemination of their research to a broader audience.

1. Utilizing AI for Clear Communication: Apply generative AI to transform complex information into clear, engaging content and articulate intricate scientific issues straightforwardly and concisely.
2. AI-Driven Text and Image Generation: Discover how to use AI tools to produce concise texts and visuals that clarify and emphasize scientific concepts for a lay audience.
3. Idea Generation for Communication: Explore AI's potential to suggest images, analogies, and examples that make complicated scientific topics more accessible and relatable to a broad audience.

Session Classification: Live Session