CLINT
CRC 1452 Catalysis at Liquid Interfaces

Hanns-Hofmann Hörsaal
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Colloquium of the CRC 1452 and the Department of Chemical and Biological Engineering

Digitalization and AI in Chemical Engineering – Why we shouldn't ignore recent developments like ChatGPT

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Previously: Dataiku SAS
From June 2023: Thoughtworks Deutschland GmbH

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in Hanns-Hofmann-Hörsaal

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Digitalization and AI in Chemical Engineering – Why we shouldn't ignore recent developments like ChatGPT

Digitalization has become one of the most prominent topics for chemical businesses, impacting and transforming the product lifecycle, from research and development to production and operations.
One area where digital technologies are having a significant impact is through the use of machine learning and AI. It enables chemical engineers to optimize processes, predict outcomes, and generate insights that were previously impossible to obtain. By leveraging large amounts of data and applying advanced algorithms and machine learning techniques, AI is helping chemical engineers improve efficiency, reduce waste, and enhance safety.

Seemingly unrelatedly, progress in fields like large-language models (e.g. ChatGPT) or generative AI (e.g. DALL-E or Google Parti) have made the headlines. But what does that mean for us? Generative AI, on the other hand cannot just produce pretty pictures as shown here – it has the potential to transform the way chemical engineers approach the design of new materials, chemicals and even suggest process flowsheets or engineering designs.
Large language models, such as GPT-3, are capable of processing and understanding vast amounts of natural language text, which can be particularly useful where large amounts of technical documentation or patents must be analyzed and understood.

These models can help chemical engineers to identify trends, predict outcomes, find answers and generate new insights based on a deep understanding of historic data. To underline the potential, this abstract was generated by providing a simple prompt.
This presentation will give an overview, share examples on these topics and highlight drivers, as well as obstacles and inhibitors of this development to inspire you to explore the field further.