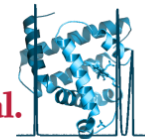




Technische
Universität
Braunschweig



Wätzig et al.
Institut für Medizinische und
Pharmazeutische Chemie



AI - many and very different areas of application in the pharmaceutical sciences

Robert Hübner, Yannick Wilke and Hermann Wätzig

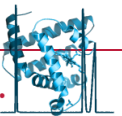
Institute of Medicinal and Pharmaceutical Chemistry, University of Braunschweig, Germany

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Artificial Intelligence (AI)

Please use this QR-Code to follow along:

<https://www.tu-braunschweig.de/en/pharmchem/forschung/waetzig/ai-muenster-2024>



Artificial Intelligence (AI)

What can it already do?

Performance compared to students

Assistance systems for the medium future?

Long-term predictions?

<https://www.pharmazeutische-zeitung.de/kann-chatgpt-pharmazie-141445/>

<https://www.pharmazeutische-zeitung.de/wie-nuetzlich-ist-chatgpt-fuer-die-apotheke-141329/>

Current Capabilities

Chatbots can help check whether your own considerations are complete

Consultations

Headache; migraine; gastrointestinal; skin care;
allergy; first-aid kit

Medication analysis

Suggestion for formulation implementation

<https://www.pharmazeutische-zeitung.de/kann-chatgpt-pharmazie-141445/>

<https://www.pharmazeutische-zeitung.de/wie-nuetzlich-ist-chatgpt-fuer-die-apotheke-141329/>

Eur J Clin Pharmacol 2023 Oct;79(10):1375-1384.



Impact of current Capabilities:

Example Reiseapotheke/travel first aid kit

1. Personal medication: Bring an adequate supply of your prescription medication. Also remember to bring a copy of your prescription with you in case you need to refill your medication.
2. General painkillers: Paracetamol or ibuprofen can be helpful for headaches, fever or pain.
3. Remedies for gastrointestinal complaints: Antidiarrheals such as loperamide can be useful for diarrhea. It is also advisable to bring electrolyte solutions or powders to ensure adequate hydration in case of diarrhea or vomiting.
4. Bandages and disinfectant: Keep sterile plasters, gauze bandages, disinfectant and possibly an antibiotic for treating wounds to hand.
5. Mosquito repellent: Thailand has mosquitoes that can potentially transmit diseases such as dengue fever or Zika virus. Therefore, bring an effective insect repellent containing DEET or other recommended active ingredients. Mosquito nets and long-sleeved clothing can also be helpful.

Impact of current Capabilities:

Example Reiseapotheke/travel first aid kit

6. Sunscreen: Due to the warm climate in Thailand, a high-quality sunscreen with a sufficient sun protection factor (SPF) is essential to avoid sunburn.
7. Motion sickness: If you are sensitive to motion sickness, you can take medication such as dimenhydrinate or scopolamine patches with you.
8. Medication for insect bites: A topical cream or gel to relieve itching and swelling after insect bites can be helpful.

The advice on possibly useful vaccinations is also good, and the bot also makes sensible statements about taking prescribed anaesthetics with you to Thailand, even if we would expect more specific and detailed information from an international pharmacy

Full transcript:

<https://cloud.tu-braunschweig.de/s/AjzCnmrpL3j5Ksc>



Artificial Intelligence (AI)

Dynamics within one year!

Growth in width: range of applications

Growth in Quality!

Artificial Intelligence (AI): range of applications

Dynamics within one year!

Models: Creating catalogs with the new spring collection
(Interview with Carl Benedikt Frey)]

Virtual influencers, PR and advertising on YouTubeInterior
designers, furniture stores [Wayfair]Planning offices
[Bentley Systems]Travel agencies [Expedia]. Hardware
stores. DHL.

Artificial Intelligence (AI): range of applications

Translations; DeepL already since 2016/17...People are needed for poetry, humor, ambiguity; less and less for technical documents

Logical skills; mathematical proofs, AlphaZero, AlphaGo;

AlphaFold/RosettaFold

Image processing; medicine, Medicine, clustering, stratification, diagnostics: Mass General Brigham, a Boston-based healthcare system
(also e.g. for astronomy and satellite images)

Artificial General Intelligence (AGI)

Visions of the future: Machine people/machine pharmacists?
Team members or personalities seen as independent? Perhaps highly recognized as consultants?

Will we be prepared to delegate important tasks to AI?
Bit by bit, after good experiences? In the pharmacy as well?

Eligible? In (successful) political teams? Minister later on?

AI could contribute to the common good.
AI would know what propaganda should look like.
AI gives us our tasks, restricts us: eating, traveling

Linus Neumann: Someone could build something very stupid,
but probably a few people will build something less stupid first,
and we'll have the chance to learn from it.

Artificial General Intelligence (AGI)

But maybe not much worse than now? Even today, helpless in the face of large “apparatuses”, authorities, large companies;
Man-made procedures, rigid administrative regulations

Longing for the superhuman?

Immortality?

Sam Altman

Nietzsche's “Thus Spoke Zarathustra”?

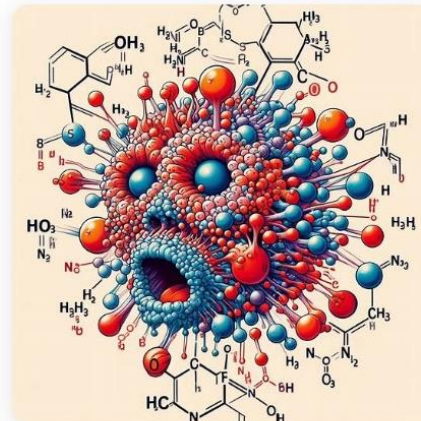
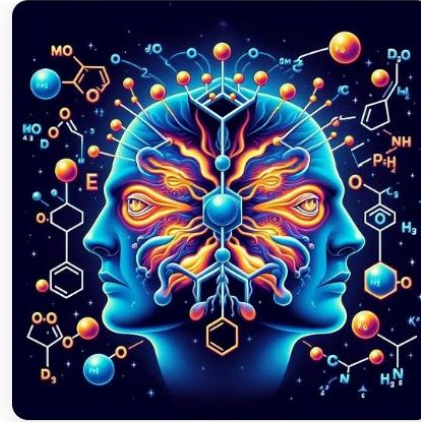
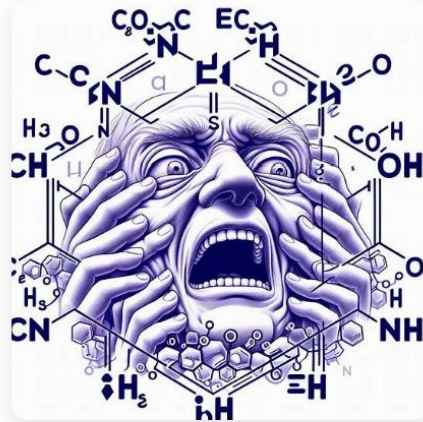
Jürgen Schmidhuber (TUM)

Time scale: Decades?

Reality Check



Reality Check



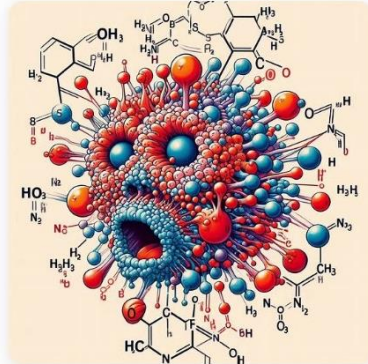
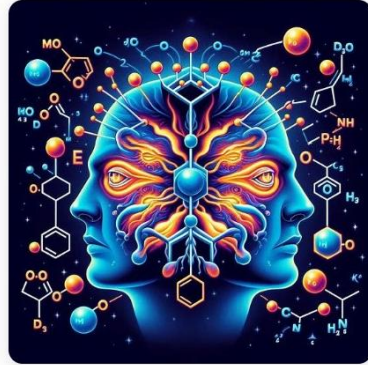
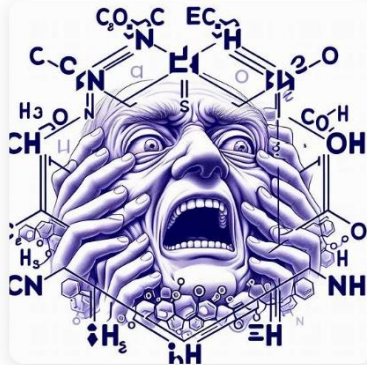
"mesomere Effekte in der Chemischen Formel von 1 Naphthalens..."

Designer

Unterstützt von DALL·E 3

89

Reality Check



"mesomere Effekte in der Chemischen Formel von 1 Naphthalens..."

Designer

Unterstützt von DALL-E 3

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