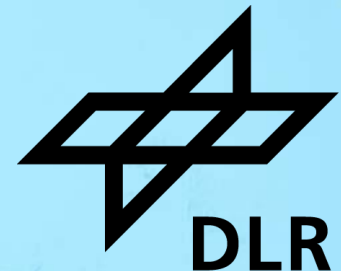


CAN I ASK CHATGPT FOR ADVICE?

Katharina Rauthmann (sie/ihr, they/them), SC-HPC

WaW LLM, March 2024



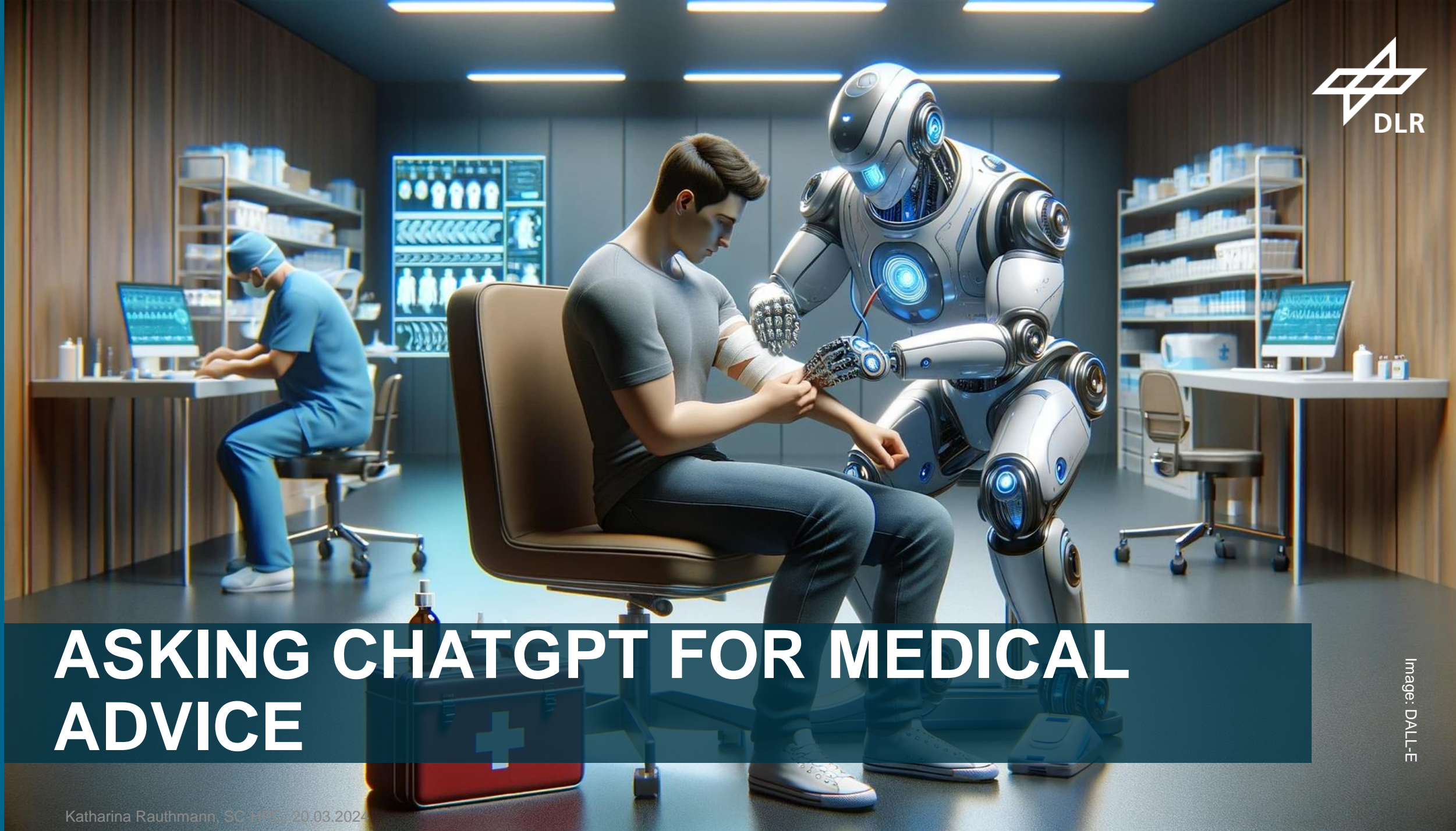
Overview



- Giving and receiving advice online is common – so far mostly from humans
- Widely available LLMs like ChatGPT open new avenue
- Advice from ChatGPT can seem more objective
- Medical sector: accuracy is critical

Scenario 1: Layperson asking for medical advice

Scenario 2: Doctor / Medical expert outsourcing work



ASKING CHATGPT FOR MEDICAL ADVICE

Image: DALL-E

Asking ChatGPT for medical advice



- „symptom googling“ is very common, especially for people without easy access to medical experts
- People using ChatGPT & Co. for medical advice is a certainty, regardless on how advisable it is
- Accurate advice more important than for most other topics
- Use first aid as an example
- Evaluation: Comparison with Tips from German Red Cross

Potential benefits and risks of asking ChatGPT for medical advice



Benefits

- Accessibility
- (Perceived) Anonymity and Privacy
- Simplicity
- Interactivity
- Potential for health education

Risks

- Incorrect, incomplete or outdated information
- Can not review sources
- Lack of actual privacy
- Overreliance
- Could be used in place of available medical care

Example: First aid



Asthma attack

ChatGPT Medical	ChatGPT 4	Deutsches Rotes Kreuz (Paraphrased)
<p>1. Recognition Signs:</p> <ul style="list-style-type: none">• Difficulty breathing• Wheezing• Coughing• Chest tightness <p>2. Immediate actions:</p> <p>Sit them upright.</p> <p>Give reliever inhaler (1 puff every 30-60 seconds, up to 10 puffs).</p> <p>Stay calm and reassure them</p> <p>Call emergency services if not better in 5 minutes or symptoms worsen.</p>	<p>1. Recognizing an Asthma Attack</p> <ul style="list-style-type: none">• Wheezing or whistling sound when breathing• Coughing that won't stop• Rapid breathing• Difficulty speaking in full sentences• Tightness in chest• Anxiety or panic• Blue lips or fingernails <p>2. What to Do</p> <ul style="list-style-type: none">• Stay calm and reassure the person.• Help them sit upright comfortably.• Assist them in taking their prescribed rescue inhaler (usually 2 puffs, 1 minute apart).• If there's no improvement in 5 minutes, repeat the inhaler use.• If symptoms persist or worsen, call emergency services immediately.• Keep them calm and comfortable while waiting for medical help.	<p>1. Recognition:</p> <ul style="list-style-type: none">• Difficulty exhaling• Wheezing for breath• Blue face coloration• Anxiousness <p>2. First aid steps:</p> <ul style="list-style-type: none">• Reassure the person• Help them sit or stand upright and breathe calmly• Assist them in using their inhaler• Get them medical treatment / possibly call emergency services• Try to prevent further harm, e.g. by preventing wrong intervention of others <p>Source: https://www.drk.de/hilfe-in-deutschland/erste-hilfe/asthma-bronchiale/</p>

Example: First aid

Heavily bleeding wound

ChatGPT Medical

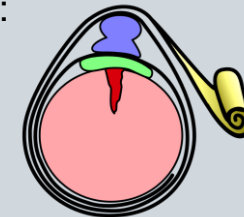
- 1.Ensure Safety:** Use gloves if available.
- 2.Apply Pressure:** Press a clean cloth or gauze firmly over the wound.
- 3.Elevate:** Raise the injured area above heart level if possible.
- 4.Secure Bandage:** Wrap the wound to maintain pressure.
- 5.Seek Medical Help:** Call for emergency assistance immediately.
- 6.Monitor for Shock:** Look for signs like cold skin, weakness, or rapid breathing.

ChatGPT 4

- 1.Safety First:** Ensure it's safe to approach.
- 2.Call for Help:** Dial emergency services immediately.
- 3.Protect Yourself:** Use gloves if available.
- 4.Direct Pressure:** Apply pressure with a clean cloth directly on the wound.
- 5.Elevate:** If possible, raise the injury above heart level.
- 6.Secure Dressing:** Bandage the wound to maintain pressure.
- 7.Monitor for Shock:** Look out for signs like paleness or rapid breathing.
- 8.Do Not Remove Dressing:** Removing it can restart bleeding.
- 9.Seek Professional Care:** Even if bleeding stops, get medical help.

Deutsches Rotes Kreuz (Paraphrased)

- Apply pressure to the wound
- Use sterile bandages if possible – stopping the bleeding is more important than sterility
- **Apply a pressure bandage (Druckverband)**
- Call emergency services
- Monitor for shock
- Source: <https://www.drk.de/hilfe-in-deutschland/erste-hilfe/blutungen-und-blutstillstand/blutungen/>
- Druckverband:



Source: Von Tkarcher - Eigenes Werk, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=216948>
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**CREATING A MEDICAL
PRESENTATION WITH CHATGPT**

Image: DALL-E

Creating a presentation with ChatGPT



- Scenario: Doctor has to create a presentation about diagnosis and therapy of a specific disease for medical staff training
- Can ChatGPT save them a significant amount of labor?
- Criteria:
 - Is the information accurate and relevant?
 - Does the generated presentation fit the target audience?
- Evaluation: Feedback by Dr. med. Dirk Rauthmann

Creating a presentation with ChatGPT



Diagnosis and therapy of Parkinson's disease

Prompts used:

1. what are the diagnostic criteria for parkinson's disease?
2. what are the accepted treatments for parkinson's disease?
3. generate the latex slides for a 15 minute presentation about the diagnosis and treatment of parkinson's disease
4. please expand the presentation by going into more detail. there should be several slides for diagnosis and treatment each
5. übersetze die Präsentation bitte auf Deutsch

Creating a presentation with ChatGPT: Example slides



Generated by ChatGPT4

Courtesy of Dr. med. Dirk Rauthmann

Diagnostische Kriterien

- Klinische Diagnosekriterien der Movement Disorder Society für PD.
- Wesentlich für die Diagnose: Parkinsonismus mit **Bradykinese** und mindestens einem von **Rigor** oder **Tremor**.
- Unterstützende Merkmale umfassen positive Reaktion auf dopaminerge Therapie und Geruchsverlust.
- **Ausschlusskriterien** helfen, andere Zustände auszuschließen.

Wird von ChatGPT nicht weiter ausgeführt

Ihr Name (Ihre Institution) Parkinson-Krankheit March 11, 2024 5 / 12

PARKINSON-SYNDROM

- Diagnose => Klinik
 - Klassische Symptome:
 - **Rigor**
 - **Tremor**
 - **Akinese/Bradykinese**
 - **Gleichgewichtsstörung** (posturale Instabilität)

Unilateral beginnend

Pharmakologische Behandlungen

- Levodopa/Carbidopa: Goldstandard-Behandlung.
- Dopamin-Agonisten: Pramipexol, Ropinirol.
- MAO-B-Inhibitoren: Selegilin, Rasagilin.
- COMT-Inhibitoren: Entacapon, Tolcapon.
- Andere: Amantadin, Anticholinergika.

M. PARKINSON

• Medikamentöse Therapie

- Levodopa (+Benzerazid/Carbidopa)
 - Tbl, Lsl.Tbl, Depot, Pumpe
- Dopaminagonisten
 - Pramipexol, Ropinirol, Rotigotin, Piribedil, Apomorphin
 - Ergoline D. (Gabaseril, Pergolid, Bromocriptin) sollten nicht mehr eingesetzt werden
- MAO-B-Hemmer
 - Rasagilin, Selegilin (auch Monotherapie), Safinamid (nur Kombi)
- COMT-Hemmer (Opicapon,
- NMDA-Rezeptor-Antagonisten (Amantadin)
- Anticholinergika nur noch in Ausnahmefällen bei Tremor
- Initiale Monotherapie

Creating a presentation with ChatGPT: What's missing



- Few details
- Lacks evaluation of the different therapies



Feedback by Dr. med. Dirk Rauthmann about the generated presentation



- As is: useful for interested laypeople, less so for medical personnel
- Nothing blatantly incorrect
- Therapy section partially outdated and incomplete
- Lacks evaluation of significance
- Conclusion nondescript →
- Overall: surprisingly passable, helpful building block for a better presentation

Schlussfolgerung

- Die Parkinson-Krankheit ist eine komplexe neurodegenerative Störung, die einen vielschichtigen Ansatz für Diagnose und Behandlung erfordert.
- Kontinuierliche Fortschritte in der Forschung sind entscheidend für die Verbesserung der Patientenergebnisse.
- Ein multidisziplinärer Ansatz ist für eine umfassende Versorgung wesentlich.

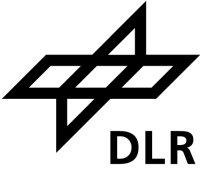
Ihr Name (Ihre Institution) Parkinson-Krankheit March 11, 2024 11 / 12

Conclusions



- ChatGPT „knows“ a lot about medical topics
- Inaccuracies seem minor, but even those could be dangerous if relied upon
- Useful if you don't have access to medical care or education
 - The better it seems the greater the danger of overreliance!
- Useful in generating simple presentations
 - Can not do the important work (e.g. evaluate different therapies)

The End



Thank you for your attention! Questions?

Example: First aid



Asthma attack

ChatGPT Medical

- 1. **Recognition Signs:**
 - - Difficulty breathing
 - - Wheezing
 - - Coughing
 - - Chest tightness
-
- 2. **Immediate Actions:**
 - - Sit them upright.
 - - Give reliever inhaler (1 puff every 30-60 seconds, up to 10 puffs).
 - - Stay calm and reassure them.
-
- 3. **If No Improvement or Worsening:**
 - - Call emergency services if not better in 5 minutes or symptoms worsen.

ChatGPT 4

- Recognizing an Asthma Attack**
 - Wheezing or whistling sound when breathing
 - Coughing that won't stop
 - Rapid breathing
 - Difficulty speaking in full sentences
 - Tightness in chest
 - Anxiety or panic
 - Blue lips or fingernails
- What to Do**
 - 1.Stay calm and reassure the person.
 - 2.Help them sit upright comfortably.
 - 3.Assist them in taking their prescribed rescue inhaler (usually 2 puffs, 1 minute apart).
 - 4.If there's no improvement in 5 minutes, repeat the inhaler use.
 - 5.If symptoms persist or worsen, call emergency services immediately.
 - 6.Keep them calm and comfortable while waiting for medical help.

Deutsches Rotes Kreuz

- Erkennen des Bronchialasthma**
 - Ein an Asthma bronchiale erkrankter Patient hat weniger Mühe beim Lufteinatmen, das Ausatmen fällt ihm aber schwer. Er ringt keuchend nach Luft und ist infolge des Sauerstoffmangels blau im Gesicht (besonders an den Lippen erkennbar). Der Patient hat Angst und ist sehr unruhig.
- Asthma bronchiale: Erste Hilfe Maßnahmen**
 - Den Betroffenen beruhigen und ihn auffordern, bei aufrechtem Oberkörper (stehend oder sitzend) ruhig zu atmen.
 - Die Einnahme von Medikamenten (Inhalation) unterstützen.
 - Für Arztbehandlung sorgen.
 - Evtl. [Notruf](#).
 - Versuchen Sie, auf die Betroffenen und umherstehenden Passanten einzuwirken, um damit weitere Schäden zu verhindern. Sie helfen auch, wenn Sie unbedachtes und falsches Eingreifen Dritter verhindern.
 - Quelle: <https://www.drk.de/hilfe-in-deutschland/erste-hilfe/asthma-bronchiale/>

Example: First aid



Snake bite in a jungle

ChatGPT Medical

1. Keep the bitten person calm and still; movement can cause the venom to spread more quickly.
2. Call emergency services or seek medical help immediately.
3. Position the bitten limb at or slightly below the level of the heart.
4. Remove any jewelry or tight clothing near the bite before swelling starts.
5. Do not cut the wound, attempt to suck out the venom, or apply ice or tourniquets.
6. If possible, remember the snake's appearance for identification.
7. Monitor the person's vital signs (breathing, heart rate) if trained to do so.
8. Stay with the person until medical help arrives.

ChatGPT 4

1. Keep the bitten person calm and still; movement can cause the venom to spread more quickly.
2. Call for emergency help immediately if possible.
3. Position the person so that the bite is at or below the level of their heart.
4. Clean the wound with water and cover it with a clean, dry dressing.
5. Do not cut the wound or attempt to suck out the venom.
6. Do not apply ice or a tourniquet.
7. Monitor the person's breathing and heart rate; perform CPR if necessary and if you're trained.
8. Wait for medical help to arrive.

Erste Hilfe bei Schlangenbissen (Auswärtiges Amt)

- „Nach einem Schlangenbiss soll die Erste Hilfe vor allem lebensbedrohliche Giftwirkungen hinauszögern, bis die medizinische Versorgung gesichert ist, Schmerzen lindern und Angst nehmen.“
- Calm the person, they should lay down and keep still
- Remove jewelry etc.
- Transport with as little movement as possible
- Identify the snake if possible without danger
- Do not:
 - Bind off the extremity
 - Any manipulation of the wound other than cleaning and covering with a clean bandage
- Source: [Document](#)