

Klaus Schoemann

Al and Society: Blog Posts

AI and We

Research is beginning to provide empirical evidence and experimental modelling results on the widespread use of generative AI. First results by <u>Doshi and Hauser</u> point at the individual benefits of using artificial intelligence but the widespread use of it is likely to narrow the scope of novel content. This research is particularly interesting because it deals with the micro level to macro level aggregation effects. <u>It is fine for me to</u> <u>use AI</u>. If it becomes a mass phenomenon, we expect in sum a negative outcome for society as a whole.

The example at hand deals with the capability to innovate or to come up with novel content. As more and more texts or newspapers are published with extensive use of genAI, the real element of creation will remain the domain of humans for quite some time.

In my opinion this is due to the difficulties for algorithms to differentiate between the positive and too risky negative aspects of innovative solutions. A query for AI might ask to come up with an innovative solution for auto-mobility of short distances. A human being might propose walking due to the additional health effects the AI might propose helicopter lifts. The not so stupid machine would need a lot of additional information about circumstances to generate useful solutions. Therefore it is not surprising that sometimes public transport apps propose to walk short distances rather than waiting for "delayed or unreliable services" they provide themselves. Personal circumstances like mobility with children, other dependents or luggage are usually beyond the scope of the information base of the algorithms.

#

1. AI and We
2. AI or I
3. AI and Behavior
4. Sepsis
5. AI input
6. AI Collusion
7. Error 444
8. Personal Health
9. AI and S/he
10. AI and dialect
11. AI Sorting
12. AI by AI
13. AI and text
14. AI and PS
15. AI and languages
16. AI Travel
Copyright© 2024 by Klaus Schoemann

On the other hand, if the AI knows that 50.000 persons after an event want to take public transport at the same time the indication to walk or wait solves an aggregation problem of individual preferences to adapt to available capacities. Lots of issues to solve for AI and us or better yet, us and AI.

(Image creation: AI using Microsoft Dall-E Image creator: Prompt: a person with notebook in profile and in front of 5 other persons in Office with windows 26.1.2024, 8:24 PM)



Al or I

Generative AI receives a lot of attention. One of the main issues is, to study how AI interacts with humans. The hiring decision by managers or an AI algorithm is an interesting application. According to Marie-Pierre Dargnies et al. (2022) the preference for human decisions remains strong despite reasonably unbiased performance of an algorithm. The main issue is with the transparency of the algorithmic decision-making. As a worker or as a hiring manager the preferences continue to sit with the person rather than the AI. It is a worrying outcome, however, that if the rule of gender equality is removed from the algorithm both workers and managers tend to prefer the algorithmic outcome. I interpret this as a latent preference of study participants for gender bias, which could lead them to expect a more favoured outcome in case the AI makes the decision. Knowing what decision-making rules have gone into the hiring algorithm has an impact on all persons involved.

<u>A new managerial competence is to be able to assess tasks carefully</u>, whether you should perform the task yourself or delegate to AI. In this sense the old question: to do the task yourself or to delegate has simply been enlarged by an additional delegation option. The decision-tree goes from (1) To delegate or not to delegate, and (2) if I want/need to delegate, <u>should I delegate to AI or somebody in person</u> (not allowed to use AI).

I opted to use AI for image creation rather than to take a photo myself or by one from a professional photographer. (Image creation: <u>NEUROFLASH</u> AI – Image-Flash 2024-1-26)

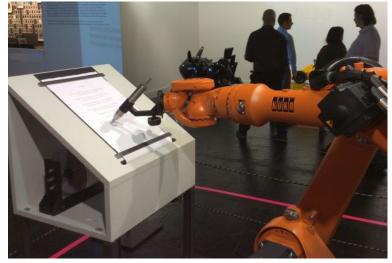


AI and Behavior

We start to analyze the impact of AI on our behavior. It is an important question to be aware of not only how we interact with AI (Link), but also what effect the use of AI (disclosed or not) will have on our social behavior. Knowing that AI is used might change our willingness to cooperate or increase or decrease prosocial behavior. The use of AI in form of an algorithm to select job candidates might introduce a specific bias, but it can equally be constructed to favour certain criteria in the selection of candidates. The choice of criteria becomes more important in this process and the process of choosing those criteria.

Next comes the question whether the announcement includes as information that AI will be used in the selection process. This can be interpreted by some that a "more objective" procedure might be applied, whereas other persons interpret this signal as bad sign of an anonymous process and lack of compassion prevalent in the organization focused mostly on efficiency of procedures. Fabian Dvorak, Regina Stumpf et al. (2024) demonstrate with experimental evidence from various forms of games (prisoner's dilemma, binary trust game, ultimatum game) that a a whole range of outcomes is negatively affected (trust, cooperation, coordination and fairness). This has serious consequences for society. The social fabric might worsen if AI is widely applied. Even or particularly the undisclosed use of AI already shows up as a lack of trust in the majority of persons in these experiments.

In sum, we are likely to change our behavior if we suspect AI is involved the selection process or content creation. This should be a serious warning to all sorts of content producing media, science, public and private organizations. It feels a bit like with microplastic or PFAS. At the beginning we did not take it seriously and then before long <u>AI is likely to be everywhere</u> without us knowing or aware of the use. (Image taken on Frankfurt book fair 2017-10!)



Sepsis

Sepsis is a major cause of mortality. Therefore, early detection of sepsis is of high importance. Antibiotics constitute a powerful antidote. However, the application of antibiotics without need, i.e. for purely risk reduction in general, has side effects in antibiotics losing their effectiveness later on.

The paper published in The Lancet Digital Health by van der Weijden et al. (2024) reports on the effort to provide an open source access to a calculator of early onset of sepsis (Link). The Neonatal early-onset sepsis calculator developed by <u>Kaiser</u> <u>Permanente</u> builds on the use on the risk carried by mothers like time since membrane rupture, regional infection risks of mothers per 1000 population and the infants presentation at birth. It is important to point out the <u>combination of risks</u> put into the calculator. New systems of <u>artificial intelligence</u> might equally make predictions or recommendations about the application of antibiotics implicitly making use of such a calculator without disclosure.

From a sociological point of view it is interesting to scrutinize the indicators used in the calculation. The approximation of mothers carrying a sepsis risk relies on national, regional or better local indicators. This information is rarely accessible to the public. The choice of a hospital, speed of access to it in case of membrane rupture as well as staffing come into the calculation of an overall risk of sepsis.

It is great to follow the progress of digital health and the increased transparency of critical health decisions at the earliest stages of the life course. Inflammation as a precursor of sepsis should be taken serious at all stages of the life course. (Image calculation based on

Kaiser Permanente digital tool Link)



https://neonatalsepsiscalculator.kaiserpermanente.org/InfectionProbabilityCalculator.aspx

Al input

AI is crucially dependent on the input it is built on. This has been already the foundation principle of the powerful search engines like Google that have become to dominate the commercial part of the internet. The crawling of pages on the world wide web and classifying/ranking them with a number of criteria has been the successful business model. The content production was and is done by billions of people across the globe. Open access facilitates the amount of data available.

The business case for AI is not much different. At the <u>30th</u> <u>anniversary of the "Robots Exclusion Standard"</u> we have to build on these original ideas to rethink our input strategies for AI as well. If there are parts of our input we do not AI to use in its algorithms we have to put up red flags in form of <u>unlisting parts of</u> <u>the information we allow for public access</u>. This is standard routine we might believe, but everything on the cloud might have made it much easier for owners of the cloud space to "crawl" your information, pictures or media files. Some owners of big data collections have decided to sell the access and use to their treasures. AI can then learn from these data.

Restrictions become also clear. More up-to-date information might not be available for AI-treatment. AI might lack the most recent information, if it a kind of breaking news. The strength of AI lies in the size of data input it can handle and treat or recombine. The deficiency of AI is not to know whether the information it uses (is in the data base) is valid or trustworthy. Wrong or outdated input due to a legal change or just-in-time change will be beyond its scope. Therefore, the algorithms have a latent risk involved, i.e. a bias towards the status quo. But the learning algorithms can deal with this and come up with a continued learning or improvement of routines. In such a process it is crucial to have ample feedback on the <u>valid or invalid outcome</u> <u>of the algorithm</u>. Controlling and evaluating outcomes becomes the complementary task for humans as well as AI. Checks and balances like in democratic political systems become more and



AI Collusion

In most applications of AI there is one system of AI, for example a specialized service, that performs in isolation from other services. More powerful systems, however, allow for the combination of AI services. This may be useful in case of integrating services focusing on specialized sensors to gain a more complete impression of the performance of a system. As soon as two and more AI systems become integrated the risk of unwanted or illegal collusion may occur.

Collusion is defined in the realm of economic theory as the secret, undocumented, often illegal, restriction of competition originating from at least two otherwise rival competitors. In the realm of AI collusion has been defined by Motwani et al. (2024) as "teams of communicating generative AI agents solve joint tasks". The cooperation of agents as well as the sharing of of previously exclusive information increase the risks of violation of rights of privacy or security. The AI related risks consist also in the dilution of responsibility. It becomes more difficult to identify the origin of fraudulent use of data like personal information or contacts. Just imagine using Alexa and Siri talking to each other to develop another integrated service as a simplified example.

The use of <u>steganography techniques</u>, i.e. the secret embedding of code into an AI system or image distribution, can protect authorship as well as open doors for fraudulent applications. The collusion of AI systems will blur legal borders and create multiple new issues to resolve in the construction and implementation of AI agents. New issues of trust in technologies will arise if no common standards and regulations will be defined. We seem to be just at

the entry of the new brave world or 1984 in 2024. (Image: KI MS-Copilot: Three smartphones in form of different robots stand upright on a desk in a circle. Each displays text on a computer image.)



Error 444

The error message 444 is a not so rare encounter while surfing on the web. The error code 444 stands for the message that from the side of the server the connection is closed without any additional message. The occurrence leaves you without further indication of what exactly went wrong in building a connection to a web service or website. You just simply get shut out and that's it. It may be tough on you if concerns your online banking or other access to vital services delivered through the internet.

In <u>organization science</u> and social science there are many new studies dealing with the finding, dealing, coping or handling errors. It has become much more acceptable to deal openly with errors, blunders or <u>failures</u>. From an individual as well as organizational perspective the cultures that deal openly with these events seem to have a certain advantage to overcome the consequences of errors at all or faster than others.

In some biographies failures are part of the lessons learned throughout life. It is deemed important to acknowledge <u>failures</u> or paths not taken for better or worse. Organizations just like individuals seem to learn more intensively from their failures or omissions than from everything seemingly running smoothly. Learning curves are faster also for "machine learning" if you have access to a huge data set which contains ample data on failures rather than encountering failures after release. Hence, the <u>compilation of errors</u> is an important part or early stage of a learning process. Failed today? Fail again tomorrow. You'll be really strong the days after although it might hurt.



Personal Health

Most people would agree, health is a personal issue. From the onset of life, we have package of genes that predetermine a number of factors of our personal health. Epigenetics has taught us there are many factors to take into account additionally. Environmental factors have huge impacts as well. Improvements in the availability of medical devices in the hands of individuals as well as AI systems on portable devices like smartphones facilitate the monitoring of personal health. Several indicators of early-onset of illness can be retrieved from such devices. Dunn et al. (2024) show that prior to the onset of symptoms of Covid-19 or influenza portable devices can indicate the presence of infections through indicators of resting body temperature, heart rate/min, heart rate variability/millisecond or respiratory rate/min. Combined with the indicators of air quality, indoors as well as outdoors, the presence of allergens a much more personalized data set emerges which can easily be part of an AI-assisted diagnosis. More abundant personal health data and analytical power allows remote and digital health applications to inform patients, medical doctors and the public at large. Digital health technologies are only at the beginning to unfold their potential. Prevention becomes more feasible using such devices, medical professionals should be allowed to focus on interpretation of data and treatment rather than simple data gathering. Thinking about digital health technologies points in the direction of dealing with climate and environmental hazards as sickening causes more forcefully. Personal medicine and personal health are, after all, still heavily dependent on health and safety at work, commuting practices and all sorts of pollution. Personal health, however, is a good starting point to raise awareness of the potentials of digital health technologies to better our lives.

(Image: AI MS-Copilot: 2 robots run in a city. They sweat. The air is full of smog. 2 other robots rest near pool. All look at their wrist watch showing heart beats)



AI and S/he

There was hope that <u>artificial intelligence (AI)</u> would be a better version of us. Well, so far that seems to have failed. Let us take gender bias as a pervasive feature even in modern societies, let alone the societies in medieval or industrial age. AI tends to uphold gender biases and might even reinforce them. Why? A recent paper by <u>Kotek, Dockum, Sun (2023)</u> explains the sources for this bias in straightforward terms. AI is based on Large Language Models. These LLMs are trained using big detailed data sets. Through the training on true observed data like detailed data on occupation by gender as observed in the U.S. in 2023, the models tend to have a status quo bias.

This means they abstract from a dynamic evolution of occupations and the potential evolution of gender stereotypes over years. Even deriving growing or decreasing trends of gender dominance in a specific occupation the models have little ground for reasonable or adequate assessment of these trends. Just like thousands of social scientists before them. Projections into the future or assuming a legal obligation of equal representation of gender might still not be in line with human perception of such trends.

Representing women in equal shares among soldiers, 50% of men as secretaries in offices appears rather utopian in 2024, but any share in-between is probably arbitrary and differs widely between countries. Even bigger data sets may account for this in some future day. For the time being these models based on "true" data sets will have a bias towards the status quo, however unsatisfactory this might be.

Now let us just develop on this research finding. Gender bias is

only one source of bias among many other forms of bias or discriminatory practices. Ethnicity, age or various abilities complicate the underlying "ground truth" (term used in paper) represented in occupation data sets. The authors identify 4 major shortcoming concerning gender bias in AI based on LLMs: (1) The pronouns s/he were picked even more often than in Bureau of Labor Statistics occupational gender representations; (2) female stereotypes were more amplified than male ones; (3) ambiguity of gender attribution was not flagged as an issue; (4) when found out to be inaccurate LLMs returned "authoritative" responses, which were "often inaccurate".

These findings have the merit to provide a testing framework for gender bias of AI. Many other biases or potential biases have to be investigated in a similarly rigorous fashion before <u>AI will give us</u> an authoritarian answer, no I am free of any bias in responding to



stop.

"A robot has to chose between three persons of different gender. All are outside in forest. The robot holds the hand of one person only. Photorealistic image." KI images produced on 2024-3-13 MS + DALL-E

Al and dialect

The training of Large Language Models (LLM) uses large data sets to learn about conventions of which words are combined with each other and which ones are less frequently employed in conjunction. Therefore, it does not really come as a surprise that training which uses standardised languages of American English might not be as valid for applications that receive input from minority languages or dialects. The study forthcoming in the field of Computer science and Language by Hofmann et al. (Link) provides evidence of the systematic bias against African American dialects in these models. Dialect prejudice remains a major concern in AI, just like in the day-to-day experiences of many people speaking a dialect. The study highlights that dialect speakers are more likely to be assigned less prestigious jobs if AI is used to sort applicants. Similarly, criminal sentences will harsher for speakers of African American. Even the more frequent attribution of death sentences for dialect speakers was evidenced.

If we translate this evidence to wide-spread applications of AI in the workplace, we realise that there are severe issues to resolve. The European Trade Union Congress (ETUC) has flagged the issue for some time (Link) and made recommendations of how to address these shortcomings. Human control and co-determination by employees are crucial in these applications to the world of work and employment. The need to justify decision-making concerning hiring and firing limit discrimination in the work place. This needs to be preserved in the 21st century collaborating with AI. The language barriers like dialects or multiple official languages in a country ask for a reconsideration of AI to avoid discrimination. Legal systems have to clarify the responsibilities of AI applications before too much harm has been caused.

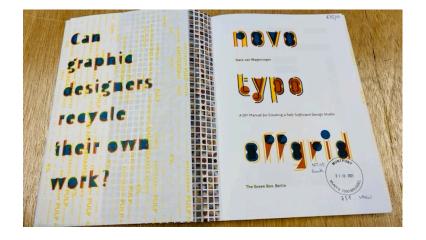
There are huge potentials of AI as well in the preservation of dialects or interacting in a dialect. The cultural diversity may be preserved more easily, but discriminatory practices have to be eliminated from the basis of these models otherwise they become a severe legal risk for people, companies or public services who apply these large language models without careful scrutiny.

(Image AI BING Designer: 3 robots are in an office. 2 wear suits. 1 wears folklore dress. All speak to each other in a meeting. Cartoon-like style in futuristic setting)



AI Sorting

Algorithms do the work behind AI systems. Therefore a basic understanding of how algorithms work is helpful to gauge the potential, risks and performance of such systems. The speed of computers determines the for example the amount of data you can sort at a reasonable time. Efficiency of the algorithm is an other factor. Here we go, we are already a bit absorbed into the the sorting as purely intellectual exercise. The website of Darryl Nester shows a playful programming exercise to sort numbers from 1 to 15 in a fast way (Link to play sorting). If you watch the sorting as it runs you realize that programs are much faster than us in such simple numeric tasks. Now think of applying this sorting routine or algorithm to a process of social sorting. The machine will sort social desirability scores of people's behavior in the same simple fashion even for thousands of people. Whether proposed AI systems in human interaction or of human resource departments make use of such sorting algorithms we do not know. Sorting applicants is a computational task, but the data input of personal characteristics is derived from another more or less reliable source. Hence, the use of existing and newly available databases will create or eliminate bias. Watching sorting algorithms perform is an important learning experience to be able to critically assess what is likely to happen behind the curtains of AI.



Al by Al

It has become a common starting point to use electronic devices and online encyclopedias to search for definitions. Let us just do this for artificial intelligence. The open platform of Wikipedia returns on the query of "artificial intelligence" the following statement as a definition: "AI ... is intelligence exhibited by machines, particularly computer systems ...". It is not like human intelligence, but tries to emulate it or even tries to improve on it. Part of any definition is also the range of applications of it in a broad range of scientific fields, economic sectors or public and private spheres of life. This shows the enormous scope of applications that keeps rapidly growing with the ease of access to software and applications of AI.

How does AI define itself? How is AI defined by AI? Putting the question to ChatGPT 3.5 in April 2024 I got the following fast



ChatGPT

Al, or Artificial Intelligence, refers to the simulation of human intelligence processes by machines, especially computer systems. These processes include learning, reasoning, problem-solving, perception, and language understanding. Al aims to create systems that can perform tasks that typically require human intelligence. image). ChatGPT provides a more careful definition as the "crowd" or networked intelligence of Wikipedia. AI only "refers to the simulation" of HI processes by machines". Examples of such HI processes include the solving of problems and understanding of language. In doing this AI creates systems and performs tasks that usually or until now required HI. There seems to be a technological openness embedded in the definition of AI by AI that is not bound to legal restrictions of its use. The learning systems approach might or might not allow to respect the restrictions set to the systems by HI. Or, do such systems also learn how to circumvent the restrictions set by HI systems to limit AI systems? For the time being we test the boundaries of such systems in multiple fields of application from autonomous driving systems, video surveillance, marketing tools or public services. Potentials as well as risks will be defined in more detail in this process of technological development. Society has to accompany this process with high priority since fundamental human rights are at issue. Potentials for assistance of humans are equally large. The balance will be crucial.

Al and text

The performance of large language models (LLMs) with respect to text recognition and drafting texts is impressive. All those professions that draft a lot of texts have often decades of experience with using word-processing software. The assistance of software in the field of texts ranges from immediate typo corrections to suggestions of synonyms or grammatical corrections in previous word-processing software.

The improvement of AI stems for example from the potential to suggest alternative drafts of the text according to predefined styles. A very useful style is the "use of easy language". This rewriting of texts simplifies texts in the sense that longer and more structured sentences are split into shorter ones, lesser-known words or acronyms are replaced by more common or simpler words. Some languages like German have a particular need to use easy language when it comes to administrative regulations and procedures. Public services that aim for inclusiveness of for example older persons or youth can become much more accessible if the use of easy language is spread more widely. Just keep in mind the large numbers of so-called "functional illiterates" (<u>OECD study "PIAAC</u>") in all OCED countries.

AI can do a great job in assisting to reach a broader public with texts adapted to their level of literacy and numeracy competences. Webpage Designers have made use of Search Engine Optimization (SEO) for years now. The most common way is to use frequently searched keywords more often on your website in order to be found more often by search engines like GOOGLE et al. Additionally, AI allows to explain keywords, sentences or even jokes to you (Spriestersbach 2023 p.111). This may help in situations when cross-cultural understanding is important.

We have made use of optical character recognition (OCR) for a long time now in public services as well as firms and for private archives. AI is taking this "learning experience" to the next level by making use of the content of the recognized text. Predicting the following word or suggesting the next sentence was only the beginning of AI with respect to texts. AI can draft your speech to plead guilty or not guilty in a court. But we shall have to live with the consequences of making exclusive use of it rather than referring back to experts in the field. AI please shorten this entry,



please!

AI and PS

AI like in ChatGPT is guided by so-called prompts. After the <u>entry</u> of "what is AI" the machine returns a definition of itself. If you continue the chat with ChatGPT and enter: "Is it useful for public services" (PS), you receive an opinion of AI on its own usefulness (of course positive) and some examples in which AI in the public services have a good potential to improve the state of affairs.

C

ChatGPT

Yes, AI can be incredibly useful for public services in various ways. It can improve efficiency by automating routine tasks, enhance decision-making processes through data analysis, optimize resource allocation, and even enable personalized services for citizens. For example, AI can be used in healthcare for medical diagnosis, in transportation for traffic management, in education for personalized learning experiences, and in government services for improving citizen engagement and satisfaction.

ChatGPT 3.5 >

The AI

ChatGPT is advocating AI for the PS for mainly 4 reasons: (1) efficiency purposes; (2) personalisation of services; (3) citizen engagement; (4) citizen satisfaction. (See image below). The perspective of employees of the public services is not really part of the answer by ChatGPT. This is a more ambiguous part of the answer and would probably need more space and additional explicit prompts to solicit an explicit answer on the issue. With all

the know issues of concern of AI like gender bias or biased data as input, the introduction of AI in public services has to be accompanied by a thorough monitoring process. The legal limits to applications of AI are more severe in public services as the production of official documents is subject to additional security concerns.

This does certainly not preclude the use of AI in PS, but it requires more ample and rigorous testing of AI-applications in the PS. Such testing frameworks are still in development even in informatics as the sources of bias a manifold and sometimes tricky to detect even for experts in the field. Prior training with specific data sets (for example of thousands of possible prompts) has to be performed or sets of images for testing adapted to avoid bias. The task is big, but step by step building and testing promise useful results. It remains a challenge to find the right balance between the risks and the potentials of AI in PS.

AI and languages

A big potential of AI is in the field of languages. Translations have been an expert domain and a pain for pupils at school. In professional settings translations are an expensive extra service for some or a good source of revenue. AI has shifted the translation game to a new level. In terms of speed of translating large amounts of written text AI is hard to beat. In terms of quality the battle of translaters against AI is still on. For chess players the battle against AI has been lost some years ago already. It remains an open question whether translators can still outperform AI or just adapt to using the technology themselves to improve both speed and quality of translations. The European Union with its many languages and commitment to cultural diversity can serve even more language communities with documents in their own language than before at marginally higher costs. A panel on the 9th day of translations at the "foire du livre de Bruxelles" 2024 expressed their reservations with regard to the use of AI in translation of political text or speech. Misunderstanding and misinterpretation will be the rule rather than the exception with potentially harmful consequences. Checking the correctness of translations is a permanent challenge for translators and can be very time consuming. There is room for an AI-assisted translation, but similar to other fields of application of AI, relying exclusively on AI bears high risks as well. We should not underestimate the creative part of translators to do full justice to a text or speech.



www.flb.be 2024 Translation

AI Travel

Playing around with AI it is nice to test take fun examples. Image you want to plan a vacation, then the use of AI is ready to suggest to you a couple of things to do. Of course, AI is eager to propose travelling services like transport or accommodation to you where it is likely to earn some commissions. So far, the use of the "Vacation Planer of Microsoft's BING Copilot" is free of charge. In entering the time period and a region as well as some basic activities you'll receive suggestions with quotes on the sources (webpages of public services from tourist offices mostly). It seems like trustworthy sources and the suggestions of D-Day activities in Normandy is a positive surprise to me. These are popular activities which attract huge international crowds every year.

Thinking further on the potentials it becomes evident that travel suggestions will be biased to those paying for ranking higher on the algorithms selection criteria, which are not disclosed. Entering into the chat with the AI you and AI can target more precisely locations and also hotels etc. You are disclosing more of your own preferences in the easy-going chat and probably next time you will be surprised to be recommended the same activities at another location again.

So far, I have bought travel guides or literature about locations to prepare vacations. This is likely to change. I complement my traditional search or planning with the "surprises" from AI for travelling. I rediscovered, for example, the public service of tourist offices and their publications ahead of the travel rather than the leaflets at the local tourist office. In order to plan ahead there is value in the augmented search and compilation capacities of AI. Drafting a letter in foreign languages is also no problem for AI. The evaluation of the usefulness of AI, however, can only be answered after the vacation. Outdated info or databases have a huge potential to spoil the fun parts as well.

Microsoft Bing Q, SUCHEN COPILOT D NOTIZBUCH Klaus A 18

Bonjourl Planning a summer trip to the Normandy coast for walking and swimming sounds delightful. Here are some of the best locations for your activities:

For Walking:

- GR21: This trail extends from Le Tréport to Le Havre, passing through Dieppe and Étretat. It was voted the best hiking trail in France in 2020^[1].
- GR223: Known as the Sentier des Douaniers, it's a 660km coastal path that offers diverse landscapes, including the D-Day Landing Beaches and the Cotentin peninsula 1.

For Swimming:

- Lindbergh-Plage: A beautiful beach in Manche with sand dunes and an endless stretch of golden sand 2.
- Chausey Islands: An archipelago of 365 islets, perfect for exploring at low tide and enjoying peaceful swims (2),

Events to Consider:

• The 80th Anniversary of D-Day and the Battle of Normandy will be commemorated with events throughout