

# wAI Discussion – January 16, 2024 Faculty Senate Meeting

## Summary of Feedback from Senators

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### College of Science and Engineering

Yes, I use AI in my work. I use it in my research. If you're specifically talking about large language models (LLMs) like ChatGPT, I use those, too. For example, I see what answers they produce to assignments I give students (and I try to adapt my assignments based on what I see), and I occasionally use them as an editor for written work.

#### Primary Concerns

- Some faculty are under the belief that "AI detectors" for evaluating student submissions are reliable. They are not, this has been proven.
- Some faculty fear AI to the degree that they feel it should be avoided at all costs. Its use is not appropriate everywhere, but it's a tool that students need to know how to use.
- Better AI tools cost more money (e.g., ChatGPT 4 Turbo versus ChatGPT 3, or similar AI tools for image generation). There's a potential equity issue here.

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A significant part of my research and some part of my teaching is related to AI. Some thoughts below.

Q1: Are you using AI in your work? If so, how?

- AI in Research: Much of my research is focused on aspects of AI and machine learning (ML).
  - In [1, 2, 3], we focused on developing defense mechanisms against different classes of attacks on machine learning systems. A key feature of the methodologies developed in these works is their lightweight nature and adaptability to multi-modal inputs. Deploying these mechanisms did not require retraining or re-learning of the ML model parameters, which is typically computationally expensive. The defense mechanisms are also useful against inputs of different types (e.g., images, audio).
  - In [4], we looked into a scenario where learning-enabled AI agents share an operating environment with humans. An example is autonomous cars and human-driven cars operating on the same roads. In this setting, one is interested in equipping the autonomous vehicle with decision-making abilities that are cognizant of the presence of human decision makers in the environments. We leveraged insights from empirical models from the economic and social sciences, specifically, a technique called Prospect Theory (wiki), to design learning algorithms.
  - In [5], we have looked into unraveling and analyzing vulnerabilities that might be present in large language models (LLMs). We were able to demonstrate that most current LLMs contain a vulnerability that can be exploited by an adversary who does not have access to details of model parameters. One of the contributions of this work was to underscore a

need to develop defense/ regulatory mechanisms when LLMs are deployed in the real-world.

- These works have involved working with large machine learning models. Some of the compute support (esp. for the work in [4]) was provided by the WWU CSE Cluster.
- AI in Teaching: I teach EECE 384 - Artificial Intelligence and Reinforcement Learning in the Fall. This course introduces students to concepts in AI and reinforcement learning, and an associated lab component provides hands-on experience on working with algorithms. This is a core course for EECE students in the AIML concentration, and a Technical Elective for other EECE students. Fall 2023 is the third offering, and so far, about 50 students have completed the course.

Q2: What concerns do you have about AI on campus, particularly as it pertains to classroom assignments, research papers, etc.?

- AI in the Classroom:
  - My EECE 384 class has a policy where I encourage students to use AI tools such as Chat-GPT to debug their code. We have realized that such AI tools enable debugging in a more explainable way than reasoning about error messages displayed by the compiler. At the same time, I forbid the use of AI tools to generate code. At this point in time, I have no concerns. However, AI has the potential to be used as a tool to solve homework problems and/ or on take-home exams on a large-scale. Preventing such (mis)use and developing a sound policy to prevent this might be a challenge.
  - In EECE 384, students also have to prepare a 5-10 min presentation on the potential ethical concerns regarding the use of AI. This is typically done during the last week of class, and I have found that this exercise allows students to reflect on some consequences of what they have learned in this class.
- AI in Research:
  - Last year when news about LLMs was starting to come out, I was curious to examine the capabilities of an LLM. One student in my EECE 495 (Directed Research), with my permission, used Chat-GPT to write his end-of-quarter report on his work. At that time, we realized that while the initial output from the LLM was a very good first draft, it required careful proofreading on our parts to iron out inconsistencies and fix errors. While I haven't looked into it myself, I believe that these tools have only gotten better at these types of tasks since then.
  - Most conferences and journals that I submit papers to have in place an Ethics policy which explicitly forbids the use of AI tools during the writing of a submitted manuscript. Some conferences also require authors to have a couple of paragraphs identifying potential ethical concerns and offering possible mitigation strategies (some examples from my papers can be found in [3], [5], [6]). At this point in time, the good publishing venues in AI/ ML/ Computer Science are somewhat 'self-regulated', which seems to be working well.

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I've been looking into ways to integrate the use of AI into the Engineering Ethics content of our Senior Capstone Design course (MFGE 491). I've done some rudimentary testing of ChatGPT on analyzing engineering ethics case studies. For some of these, it did a reasonably good job of identifying the ethical dilemmas that these cases presented to the engineers involved. I can see using ChatGPT as an additional participant during group discussions of these case studies in class. The groups start with their discussions analyzing the case, after which they review and critique the response generated by an AI. This can help the students in their understanding of ethics in those areas where the AI might identify facts the group missed, but also in appreciating its limitations when it makes incorrect claims.

As educators, we need to look beyond the obvious implications of AI on academic integrity. In all our disciplines we should be exploring how AI potentially changes what competency in practice might mean. For example, the engineering ethics code of conduct says that an engineer should only practice in their area of competency. What does it mean for a professional engineer to sign off on a design that an AI might have played a role in creating? In some ways, we've been dealing with this question for a while. There is pretty sophisticated Computer-Aided Engineering technology that we introduce our students to that can very convincingly give the wrong answer. It's challenging teaching the skills of discernment and developing in students the engineering intuition to know when an answer is wrong. AI is taking this challenge to another level. To draw an analogy, it's like taking one's hands off the steering wheel. In short, it would be short-sighted of us to limit our concerns and policymaking regarding AI to only academic honesty and integrity.

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## Woodring College of Education

<b>Are you using AI in your work? If so, how?</b>	<b>What concerns do you have about AI usage on campus, particularly as it pertains to classroom assignments?</b>
No	I'm not familiar enough with AI to comprehend what I should be concerned about.
Yes. to organize literature, create slides, etc.	It might prevent students' originality in their work.
minimally - I occasionally use it to research key topics in terms of a broad scope/understandig. An example would be comparing my course resources to a "global" overview of concepts provided by AI - not used for instruction, but rather for supplementary information (ChatGPT)	That a long-standing way to assess students' understanding, written work, can now be "gamed" by students who do not understand or invest in the content. I actually think this is a real crisis for higher education.

Very little. Some troubleshooting for the potential for academic integrity issues	A concern that has arisen recently is identifying when/whether AI has been used unethically in an assignment. The policy on plagiarism is fairly clear, but when attempting to determine if AI has been used it is unclear how to address potential academic integrity issues.
I use generative AI to help kickstart my writing projects and to quickly research topics. I find AI generated text serves as a good starting point to build off of. I also teach my students how to use AI using various generative AI tools.	I have no doubt that AI will change the landscape of education, particularly in assessments and evaluation. I personally do not believe that resisting this change is reasonable or realistic. What concerns and worries me is that I currently cannot fathom what the future of education looks like as advancements in deep learning generative AI have improved so much in just a year after ChatGPT released to mainstream attention.
No	Plagiarism, appropriate use
nothing beyond how google now does a lot of text suggestion as I write	mainly just in figuring out if students are doing their own work - or where is the line with this if they are using AI to a point

## College of Humanities and Social Sciences

Initial note on terminology: calling ChatGPT and other large language models "AI" is misleading, because the technology fakes intelligence rather than possesses it. Essentially, the technology is designed to deceive humans by taking human-generated knowledge (the content of the large language models), removing any authorial attribution, and rearranging the words in a very sophisticated way to make it appear to be original discourse. Nevertheless, in what follows I will refer to this software as "AI" in conformity with popular discourse.

The proliferation of AI is a major concern to my Humanities constituents in CHSS. None of those who responded to my fact-finding request indicated that they are using it in their research. Many of us are dealing with this new technology being used to cheat; a significant minority of students in our courses are using AI—against course policies—to generate ideas or text for written assignments and misrepresenting those ideas and texts as their own work. The lack of regulation of this technology has created a situation where it can be difficult to detect or prove. This has led to a national crisis for educators whose teaching requires students to show their learning through text produced outside of class time. I personally spent a great deal of uncompensated time over the summer reading about the issue and redesigning my course assessments to minimize opportunities for this sort of academic dishonesty. As examples, my online asynchronous summer course no longer uses written discussion posts, but instead requires students to post videos of themselves responding verbally and extemporaneously to lectures and readings. In my other courses, I ended a decade-long practice of requiring written reading responses because they can be faked with AI (I had several cases of this happening in the Spring).

Another major area of concern is the unreliability of AI detectors. The University currently pays TurnItIn large sums of money for its AI detector, which in my experience is USELESS. It often reports "zero AI use" in cases where the use of AI is certain (student admitted it). Other detectors on the internet seem

somewhat better in this regard, but sometimes flag text that is known to be human generated as AI. So the situation of machine detection is a huge mess.

A core element of Humanities education is modeling and having students practice close analysis of texts (be it literature, historical documents, contemporary writings, religious texts, or other types of discourse). In a course with more than a handful of students, it becomes impossible to know that the students did the reading and \*thought about\* the ideas—and to assess the quality of that thinking—without written assignments that are now vulnerable to AI cheating. Moving these to hand-written essay exams during the quarter is one way of avoiding this type of cheating, but it comes with several downsides:

1. It rewards students who are able to think quickly and write legibly by hand, and disadvantages those who have test-anxiety or whose thinking requires more time to develop. Some intellectuals who would become professors or other important thinkers in society, for example, can produce groundbreaking ideas if they spend many hours on their writing. In-class only assessments remove that opportunity for in-depth, methodical thinking and revision.
2. There is only so much one can write in one class period, so assessments will be shorter, shallower, and lower-quality.
3. There is simply not enough class time to have the equivalent number of class periods for assessment in the Humanities without majorly cutting into the content of the course. If the University moved to scheduling longer exam periods outside of regular class time for midterms, that would ameliorate this issue considerably.
4. It is significantly more difficult and time-consuming for professors to read and grade handwritten essay exams.

One of my constituents requested that the Senate “please prioritize adding an explicit AI section to the academic honesty policy and procedures this year (ASAP). My current sense is that we need a university-wide approach for consistency and clarity for both students and faculty.” I see that the Academic Honesty Board website explicitly mentions AI cheating as a type of dishonesty, however the official policy itself says nothing. I fully agree with my constituents that updating that policy is an urgent need.

Another constituent is concerned that the University may adopt a policy like Harvard's which states that it is unknowable whether a student used AI or not (and therefore that students cannot be charged with dishonesty for it). That would indeed have dire consequences for the quality of education that we are able to offer. It is also patently false that use of AI is always inherently undetectable. A close reader with real human intelligence can often deduce beyond a reasonable doubt that AI was used. For instance, one case I had this Fall involved a student using words that I was almost certain they did not know the meaning of. I conveyed to the student that I suspected dishonesty, and invited them into the office to discuss it. There, the student was unable to define the words at all, or to explain how they came to be there in the paper. This proved that at least those sentences were not the student's own work. Another approach is checking citations, which ChatGPT currently is very mistake-prone at. It often makes up page numbers in references, so this is another marker, together with other evidence, that can prove AI was used. As the technology becomes more sophisticated, though, it will be continuously harder to detect.

Some constituents seem blissfully unaware of the capabilities of AI, remarking to me that they think their subjects or texts are too specific and/or obscure to be vulnerable to this type of cheating. In fact, any subject that has anything written about it on the internet (almost any subject, in other words) is vulnerable to plausibly human-sounding AI-generated discourse. AI models have consumed massive amounts of

copyrighted works of scholarship (books, articles, websites, etc.) on every subject imaginable. For instance, one case I had last Spring was an AI-generated response to a specific Religious Studies textbook chapter that is not open-access (not legally publicly available on the internet). And yet ChatGPT had no problem spitting out a response that anyone but a careful and suspicious reader would have overlooked as a human-authored response to this book.

Another constituent observed “One of my goals as a teacher is to help my students think well and express themselves well. AI comprises both of these goals because our cognition and expression are intimately related. I am also concerned about the use of AI technology by the accommodations center. And the Monday Mentor material coming out of teaching and learning which appears condones and maybe even promotes the use of AI. I have expressed this concern to Justina a couple of times. It seems to me there is an unexamined acceptance of AI at Western.” I fully agree with this colleague's concerns. And similarly, another colleague said: “Students will also need to learn why it is not in their best interests to use AI. The university should address that need as well. It is not enough to focus on penalizing students after they have used AI.”

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Are you utilizing AI in your work? If so, how?

I haven't (yet) used AI in my own work. I wonder if the university might in the future offer seminars or tutorials in ways to do this.

I am not currently using AI in my work (teaching, service or research) other than playing with ChatGPT to see what it can do. In the future, I might use Midjourney or Dall-E (or another tool) to generate background images for PPT or assignments, though I don't think this will speed up any workflow, it will just make my image search more precise.

AI tools might be useful to create mechanical conjugation/grammar questions and examples rather than depending on expensive textbooks, but I haven't explored that at this point. I don't use it for students as all. I have them do all their writing on paper with pencil in class as much as possible to avoid AI and Google translator.

I do use it for myself, if I find a new story for example, some teacher AIs can be programmed to convert the new story from advanced German for example to beginning German. So that is useful to me.

What concerns do you have about AI on campus, particularly as it pertains to classroom assignments, research papers, etc. I am a bit concerned that students in my upper division Eurasian Studies classes, like Russian Folklore, might use AI to write essays that I would want them to write on their own. I'm not sure how to police this. Maybe there is a way to detect an AI-written essay? If so, I would benefit from more information about this.

I am not too concerned about the use of AI in student homework since the issues of AI tools like ChatGPT are just a continuation of those we see with automatic translators such as google translate and reverso (or with students paying others for help). Scaffolding, reflection, and/or place-based activities can make AI pretty slow and less attractive to those looking for shortcuts. More generally, I am concerned about how

to prepare students for a world in which AI is developing rapidly and used in the workplace. The "transferrable skills" that are packaged into my courses will have to evolve with the technology.

The AI fears seem to be overreactions based on the immense hype around AI as the latest corporate buzzword; Deutsche Bank just noticed out loud [1] that companies underperforming as businesses tend to talk up AI to have something positive to talk about (or to try to BS investors). The hype, when it winds its way over to academia, makes AI seem like it's more capable than it really is. There's a feedback loop here, too: the more academics fear and spread fear of AI, the more capable and potentially profitable AI will seem to investors

## College of the Environment

I have not used AI in my research

In the classroom I have designed an exercise around it to help students become better editors of their own writing.

I am concerned about take home exams and this quarter I stopped giving take home exams in ESCI340.

Should be interesting to see the whole campus response!

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I've stopped using one short, fun exercise where I let them submit a one-pager about climate change solutions, OR they could write a sonnet or a haiku if they preferred. I've had to drop the sonnet or haiku part, sadly. What was once a fun challenge is just way too easy for ChatGPT to do.

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One concern I have is the conflation of AI as a whole with generative AI tools. Many of us use machine learning AI tools like classification, regression, clustering etc. I hope that policy from the faculty senate will appreciate this nuance in terminology and avoid reinforcing confusion about AI.

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From my own personal experience – I agree wholeheartedly. I have not used AI in my own research, but have played around with matlab's machine learning toolbox, and read up on the ML libraries in R and Python, and at least given some thought to how I might use these techniques for my own work or for teaching. There are various oceanographers using ML – I know of at least one super-smart physical oceanographer using machine learning to identify large eddies and relate them to smaller turbulent flux fields. He proposes relationships between fields that can be described by/predicted by mechanics but were identified with ML from satellite– really elegant work. People just don't know enough about the cutting edge opportunities in many scientific fields. It will take a long time for us all to understand the nuances.