Nova SBE Guidelines Regarding Usage of Generative AI

Motivation

Artificial intelligence (AI) tools capable of generating text, images, voiceovers, and videos have become readily accessible to a wide range of users and geographies. As a result, both students and instructors are increasingly embracing AI technologies in their educational pursuits. However, the absence of universal guidelines has left many unsure about how to effectively incorporate these tools into their teaching methodologies.

The purpose of this guide is to equip Nova SBE Faculty with the knowledge and insights necessary to leverage AI technologies, create a positive learning environment for their students, and ensure an ethical and responsible use. The document provides a comprehensive overview of the numerous benefits of AI in education, while identifying some concerns related to unfair use, lack of transparency, and privacy concerns, which should be addressed through a conscious application of those technologies at Nova SBE.

Guidelines regarding the use of Generative AI

Guidelines Principles

Nova SBE encourages the use of AI tools, guided by three principles:

Know - The most important component in managing the integration of AI into education activities is, arguably, the instructor's proficiency with the technology. Nova SBE offers training activities to instructors and staff. This ensures that education experiences and evaluation moments are designed with AI use in mind. Instructors who are well-versed in AI are more readily able to predict its impact on students' AI uses and the impact on their learning experience.

Inform: Nova SBE strongly encourages instructors to communicate their policies about AI in their syllabi. Some courses may encourage and take advantage of AI technologies. Others may limit their use in some situations. Whether it is about ensuring students disclose how they used AI in the class, specific warnings about the characteristics of artificially generated content, or potential ethical concerns, these should all be communicated clearly to students in the syllabus. Moreover, providing training on the ethical use of AI is an invaluable skill that benefits Nova SBE students in their future professional careers—an aspect our community should wholeheartedly embrace.

Assist: As a general rule, AI should be primarily used to aid with research, generate ideas, help with writing and with improving readability. These assistance uses are substantively different from using AI to generate complete answers, essays or theses with no serious intervention by students. This leads us to give more relevance to oral evaluation moments, whereby students who are unable to justify their writing compellingly may see their grades penalized severely as a result. Whenever possible, instructors are encouraged to integrate AI in their course in an active manner (i.e., requiring student deliberative effort) rather passively (i.e., requesting essays whose answers can be easily generated by AI tools).

Case-to-case Scenarios

Specific guidelines were derived from those principles for specific scenarios, regarding the integration of AI in course syllabi, exams, essays, citations, and R&D.

AI in course syllabi

As AI technologies evolve and become more integrated with common-use software (e.g., Microsoft Office), their use is only expected to rise over time. In light of this, to stay up-to-date in terms of pedagogical innovation, Nova SBE encourages instructors to try and integrate AI technology responsibly and ethically in their syllabus. In order to achieve this, instructors should adhere to the **Assist** Principle that leverages on AI technologies in education without compromising students' reasoning abilities and active learning behaviors.

Nonetheless, a critical examination of the implications of incorporating AI into their courses is essential and the ultimate decision and responsibility for determining the extent of AI integration within the course syllabus, as well as the establishment or revision of related course policies, rests with the instructor (in line with the principle **Know**).

Should the instructor choose to incorporate AI into the teaching methodology, it is necessary to include it in the official course syllabus submitted through Netpa, thus adhering to the principle of **Inform**.

AI in exams

As per the Nova SBE's honor code, AI may not be used on exams, unless students are instructed to do so. Instructors are responsible for the design of the most appropriate evaluation method. If applied within exams, a clear and unambiguous explanation of the use of AI in the exam (**Inform**) should be provided to students.

AI in written essays

Careful consideration is always needed when predicting the effect of AI on students' activities. If it is the case that AI systems can easily produce the requested essays and therefore void the exercises from their learning value, it is quite possible that such activities will need to be replaced, including for example, by oral in-class presentations and discussions by students.

In the specific case of Theses (MSc or Doctoral), the performance in the oral defense should be given more emphasis when evaluating the student's competence and contribution to the thesis.

AI in citations

Guidelines contemplating AI in citations are divided in the following topics to ensure enough granularity and comprehension:

Citing when AI is used to retrieve information- It is acceptable to cite sources of information in academic work. Content produced by AI outputs should be cited. It is customary to cite AI-generated content as "personal communication" because it involves asking a question and receiving an answer, while being non-recoverable. In-text citation is typically used for this purpose.

Citing when AI is used to generate content – The AI tool employed to generate ideas or develop a plan should be recognized, the method of its utilization should be explained, and the date of access should be indicated.

Citing when AI is used in editing assistance – Editing assistance does not need to be acknowledged.

AI supporting Research and Development

Nova SBE encourages the responsible use of AI in research and development. Researchers must ensure their use of AI complies with all ethical guidelines, laws, and regulations of academic journals.

AI in Master's and Doctoral Theses

In line with the section above, Nova SBE encourages the responsible use of AI in thesis writing. Students must adhere to the citation policy described in the "AI in citations" section. In addition, the responsibility to discuss, defend, and justify the merit and the sources of the content of the thesis remains solely with the student. Jury members are encouraged to reflect the quality of the student's defense on the corresponding grade, including the pass/not pass decision, notwithstanding the written contents of the thesis.

Copyright and Confidentiality

Be aware that uploading text to AI services may infringe copyright, confidentiality policies, and GDPR, and that many services rely on submitted user data to further train their models.

Limitations and Implications to the use of AI

AI technology is opportunistic

Generative AI technology operates as language machines, predicting the next word or code section based on patterns learned from vast datasets at a specific timepoint (training stage). In this state, the parameters of the algorithm are defined as optimal solutions of an optimization problem defined by a cost function and a training set. Therefore, this implies that:

1) If the training set is not curated, the algorithm learns and replicates flaws, inaccuracies, biases, and constraints from sourced data, leading to inaccurate outputs (e.g., generation of text that are not factually correct, fake citations and references generated by ChatGPT). Additionally, the code produced by AI may contain offensive content, security flaws, bugs, or illegal libraries, infringing on copyrights.
2) If the training set is not broad enough, the algorithm tends to underperform in out-of-distribution data, unseen during the training stage.
3) As the algorithm only learns during the training stage, the data used to train AI models is often outdated, resulting in limited knowledge of current events.

AI can limit students' learning opportunities

Using AI to assist students during their learning journey should always be considered in light of the potential risks of reducing opportunities to grow writing or coding skills, critical thinking and problem-solving abilities, and analysis/evaluation capacities. Those are valuable skills that go beyond the students' journey at Nova SBE.

It is critical to recognize (**Know**) and disseminate (**Inform**) the limitations of generative AI and emphasize the need of verifying the accuracy of its contents in conjunction with other sources (never as a primary source). Therefore, while ChatGPT can be useful for students in, for example for proofreading and improving the clarity of written essays, it should always be used with a critical perspective and never to generate complete answers or essays (**Assist**).

Conclusions

A common question by instructors is the extent to which they can limit the use of AI tools by students. Nova SBE understands that specific learning tasks may be more effective without the use of aids. However, the pervasiveness of these tools in common software means that forbidding their use would impose an undue temptation on students, since an AI functionality may sit "one click away." In addition, it is expected that detection of AI use will remain unreliable in the long term. As a result, forbidding aids (e.g., AI, but also calculators and spreadsheets) can only take place in controlled environments, such as specific classroom sessions or exams. **As a rule, students cannot be prohibited from utilizing AI tools in asynchronous activities, such as homework essays, group projects, etc. and they cannot be evaluated differently due to the suspected or confirmed use of AI in those cases.**

Therefore, instead of forbidding the use of AI aids, instructors should modify their teaching methods according to the three aforementioned principles (**Know, Inform, Assist)**, while having in mind the rules stated in the present document to adopt in specific scenarios (course syllabus, exams, citations, R&D). In addition, these rules should be mentioned in the corpus syllabus and each instructor should ensure that

they contemplate the following critical touch-points, **adapted from Mollick and Mollick, 2023:**

- Under what circumstances AI use is permitted or forbidden.
- How/Whether students should cite or credit AI.
- A warning about the technology's tendency toward hallucination (i.e., generating deceptive content expressed in a confident manner) and clear rules regarding students' accountability for their output.
- A notice about using AI ethically and responsibly.
- The need to use AI as a tool to learn, not just to produce content effortlessly and automatically.

Nova SBE is committed to train and support to faculty, staff, and students to effectively use AI tools in their work and study, in an ethical and responsible framework. Additional literature resources are provided below.

Literature Resources

Mollick, Ethan (2023). "How to… use ChatGPT to boost your writing", *One Useful Thing.* https://www.oneusefulthing.org/p/how-to-use-chatgpt-to-boost-your [Last accessed on June 2, 2023.]

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UCLA Center for the Advancement of Teaching (2023). "The Use of Generative Artificial Intelligence in Teaching and Learning" https://teaching.ucla.edu/resources/ai_guidance/

Yale Poorvu Center for Teaching and Learning (2023). "AI Guidance" https://poorvucenter.yale.edu/AIguidance

Wilkins, Alex (2023). "Reliably detecting AI-generated text is mathematically impossible", *New Scientist*. https://www.newscientist.com/article/2366824-reliably-detecting-ai-generated-text-is-mathematically-impossible/ [Last accessed on June 2, 2023.]