87/925 amended

THE UNIVERSITY OF HONG KONG

Research Integrity Sub-Committee

Guidelines on the Responsible Use of Generative AI in Research at The University of Hong Kong

Preamble

1. The University of Hong Kong (HKU) adheres to the highest standards of research integrity to ensure that all research is accurate and trustworthy. Recent developments of artificial intelligence (AI), especially generative AI (GenAI), have challenged traditional research processes. GenAI tools generally refer to software systems that create text, images, sound, videos, and other data that resemble human-generated materials or experimentally-derived data. This ability creates new opportunities to accelerate and expand the scope of research but also raises some important concerns in research practices.

2. This document aims to provide general guidance on effective and responsible use of AI in research, especially in relation to the use of GenAI. The guidelines supplement and complement existing HKU policies, e.g. the Policy on Research Integrity (https://www.rss.hku.hk/integrity/rcr/policy) and Intellectual Property Rights Policy (https://www.rss.hku.hk/contracts/ipr), which should also be read and applied together with these guidelines.

3. These guidelines represent an overarching framework for GenAI use in research. Each Faculty, School, Department, and Research Centre is encouraged to develop supplementary guidelines to provide discipline-specific guidance, including providing examples of good use of GenAI, and providing links to international best-practice guidelines that are most appropriate for their research field.

4. Researchers, departments/schools/faculties, divisions, central administrative units and service providers and, where appropriate, research sponsors and external collaborators, need to work in partnership to implement good practice when applying these guidelines and complying with relevant legislative, research funder and regulatory requirements in terms of responsible use of GenAI in research. A researcher is anyone, e.g. staff, student, and visitor, who conducts research at the University, under the auspices of the University, or with HKU resources.

5. HKU has the responsibility to provide adequate training such that all researchers have the opportunity to understand these guidelines and have relevant knowledge and skills to implement responsible use of GenAI in research.

6. Any use of GenAI, including how the software is used, should be well documented in accordance with the Policy on the Management of Research Data and Records (https://www.rss.hku.hk/integrity/research-data-records-management) such that the process is transparent and as reproducible as possible.

7. Researchers are reminded that many GenAI tools are cloud-based and may upload data to external servers that are outside the control of individual researchers and the University. As such, HKU cannot take responsibility for the handling, storage, or potential misuse of data processed by GenAI tools that are not officially supported or governed by HKU's internal systems. In addition to institutionally supporting GenAI tools, each Faculty, School, Department, and Research Centre is encouraged to provide a list of tools that are suitable for use by researchers in their discipline. Researchers are permitted to use third-party GenAI tools for research purposes where appropriate; however, in this case the ultimate responsibility for ensuring data security, maintaining confidentiality, and protecting intellectual property lies with the individual researcher. Inadvertent disclosure of sensitive research data to external platforms may compromise ethical obligations and negatively impact data privacy and intellectual property rights.

8. It is also well known that GenAI tools can present false information in a seemingly professional manner. Inclusion of such false information in one's published work, even if unknown to the author(s), may amount to research misconduct if done through gross or persistent negligence. Therefore, any responsible use of GenAI in research must be done in a process in which human researchers can readily verify and validate output produced by GenAI. Such a process should be as transparent as possible. Once the false information in published work becomes known to the author(s), they have a duty to inform the relevant publisher and/or journal to make the necessary correction including retraction of the publication if warranted.

9. Regardless of how GenAI tools are used in research, individual researchers are ultimately responsible for upholding the following principles of research integrity (Clause 1 of the Policy on Research Integrity):
    a. be accountable and accept responsibility for all aspects of their research;
    b. honesty in the conduct and communication of research;
    c. objectivity and openness;
    d. due diligence and duty of care;
    e. fairness in giving credit and appropriate acknowledgement; and
    f. responsibility for nurturing students and early-career research colleagues.

A. Use of GenAI tools in ideation and background research

10. GenAI tools have the ability to generate research hypotheses or ideas (ideation) or generate written summary of the published literature (background research), including but not limited to text, figures, tables, mathematical equations, videos, sound, chemical structure, and other data.

11. <u>Use of GenAI for ideation and background research is only acceptable if</u>
    - this specific usage of the GenAI system is duly documented and acknowledged;
    - the researcher has verified the accuracy, fairness, and originality (or lack of originality) of text, figures, table and data generated by a GenAI tool;
    - the researcher has verified that all relevant external primary sources are cited and represented fully and fairly; and
    - the use of GenAI does not inevitably disclose patentable inventions.

12. Ultimately, the researcher must be responsible for the formulation of the core research hypotheses, claims, and research directions of a research study. The Policy on Research Integrity states that 'Honesty is required in presenting research goals and intentions, and in reporting procedures and findings. Such presentation and reporting must be full and fair.'

13. Text, images, and any data generated by a GenAI system will sometimes be taken from copyrighted materials. It is the researcher's responsibility to ensure all source materials are cited and duly acknowledged.

14. As per the Intellectual Property Rights Policy, 'It is important that any information about a potentially patentable Invention is not prematurely disclosed.' If a researcher's idea is entered into any online GenAI platform, as part of the input prompt for example, this *may* lead to inadvertent disclosure of the idea to the public.

B. Use of GenAI tools in experimentation, data collection, and data analysis

15. GenAI tools can be used to analyse, extract, and generate certain data from humans, animal models, and other living and non-living matters in the natural world. The capacity of GenAI tools to easily extract structured data from unstructured data based on diverse digital input sources provides new opportunities in research but may amplify some concerns related to ethical and responsible collection of research data. These tools may involve but not be limited to data types such as images, videos, text corpora, social media text, and electronic health records. Proper use for these purposes depends on the accurate and unbiased nature of the GenAI.

16. Furthermore, some AI tools require data to be submitted and stored in an external cloud storage system. This may violate the privacy of the data contributed by research participants.

17. GenAI tools can also be used to create ultra-realistic images, videos, sound, text and data that can be used in human experimentation, such as generation of 'deepfake' photos or videos. This leads to concerns about research data fabrication and falsification, and possible misuse of the creation. Fabrication and falsification of research data is not allowed. Furthermore, use of GenAI synthesised ultra-realistic data may lead to concerns about deception in human research.

18. According to the Policy on Research Integrity, 'objectivity of research requires maintenance of accuracy in the collection and reporting of data. Conclusions must be based on verifiable facts, and researchers should be impartial and be as transparent as possible (notwithstanding mindful of the secrecy requirement in filing of patents and know-hows) in the handling of data'.

19. According to the Policy on Research Integrity, 'the design of the research should aim at maximizing the benefits and reducing the risks to participants of the research'. Researchers should:
    a. balance risks and well-being of participants, especially vulnerable groups;
    b. respect rights of participants to make decisions for themselves, including the decision to share data or keep it confidential; and

c. avoid data collection through deception, and if it is absolutely necessary for deception to be employed, the researcher must ensure that no more than minimal risk is involved.

20. Use of GenAI for experimentation, data collection, and data analysis is only acceptable if
    a. the specific usage of the GenAI system is duly documented and acknowledged;
    b. the researcher has verified that the GenAI tool used is accurate, unbiased and fit-for-purpose for the specific research study;
    c. the researcher has verified the veracity of all the raw and processed data;
    d. confidentiality and privacy of data from research participants are respected and not shared or disclosed outside the scope of this study without prior consent;
    e. no proprietary data or data under the control of a data sharing agreement is disclosed to external parties, such as a cloud-based GenAI service provider; and
    f. research participants are appropriately informed as per any approved ethics committee such as the Institutional Review Board (IRB) and the Human Research Ethics Committee (HREC) if ultra-realistic GenAI-created materials are used as part of the research study.

C. Use of GenAI tools to generate computer code of research

21. GenAI tools can generate algorithms and computer source codes, which can then be used to create software that analyses research data for a research study. Sometimes, the algorithm and software themselves are the research products.

22. Use of GenAI for source code generation can accelerate the software development process and reduce the barrier of learning computer programming for researchers.

23. Use of GenAI to generate computer code for research is only acceptable if
    a. the specific usage of the GenAI system is duly documented and acknowledged;
    b. the researcher has verified the correctness of the algorithm and software with respect to the intended use of the researcher; and
    c. the researcher conducts and reports adequate testing to ensure the software's behaviours are well within user expectation.

24. Researchers who do not have adequate training to verify computer algorithms, source code, and perform software testing *should not* use GenAI to generate computer code for research. They should collaborate with other researchers who have those skills, such that the research team can take responsibility for the resulting software and analysis results.

25. The ownership of intellectual properties, including copyright of software source code, can be difficult to ascertain depending on the extent and nature of the use of GenAI tools. Researchers should seek professional advice before publication and disclosure of source code.

D. Use of GenAI tools for data interpretation

26. Comprehensive interpretation of research data in the context of the research field is a cornerstone of research. Proper interpretation of analysed research data should weigh the

strength of the experimental data and limitation of the study in the broader context of known knowledge and experience.

27. In most academic disciplines, interpretation of data in a research study can be regarded as a core element of intellectual and original contribution of scientific research. The researcher is ultimately accountable for all the claims made in the study. Therefore, in general the use of GenAI in generating content, including text and figures that can be seen as interpretation of research finding *is not allowed*. If the use of the GenAI tool is unavoidable, it should be limited in scope and duly acknowledged and reported.

E. Use of GenAI tools for research output / publication

28. All statements and claims made in a research publication, including a research thesis for degree conferral, are attributed to the named author(s), all of whom are regarded as having endorsed the statements and claims made in the publication. It is critical that all authors take responsibility for the text, figures, tables, modelling, or art forms that are presented in any research output, including publication in journal articles, book chapters, books, conference presentations, exhibitions, or any other dissemination methods. The norms of different academic disciplines may involve different uses of GenAI tools in preparing research publications. However, in all disciplines, the direct use or reproduction of GenAI generated text runs the risk of plagiarism if due acknowledgement is not given to the human author of the original text. In addition to citing the human author of published work, the specific use of the GenAI system in the research process must be duly documented and acknowledged.

29. Use of GenAI tools to support language editing and to translate or improve the quality of text written by the author is generally acceptable. However, GenAI generated texts should be reviewed and edited before being incorporated into the thesis/published work. Importantly it is worth noting that direct or extensive use of GenAI tools in the thesis writing process without significant human input is not allowed and may undermine the publishability of the thesis. The author is responsible for verifying the accuracy of the edited or translated text and for eliminating any AI-generated biases. Acknowledgement of this GenAI use should be done in accordance with the editorial policy of specific journals or publishers.

30. Use of GenAI tools to support image enhancement of figures that contain primary data is only acceptable if such modifications do not alter the interpretation of the data.

31. No AI-generated images and other data should be mis-represented as experimental data.

F. Use of GenAI tools for peer reviewing research papers or funding applications

32. The use of cloud-based commercial AI platforms has the potential to inadvertently disclose the content of papers or funding applications under review, thus violating the integrity and confidentiality of the established double-blind peer review process. Therefore, the use of GenAI in peer review of research output and funding applications is not acceptable.

G. Impact of GenAI tools on research training and supervision

33. For research students and trainees (including interns, research assistants, postdoctoral fellows), reliance on GenAI tools can negatively impact the development of core research skills such as critical thinking, literature review, and research communication.

34. In the training period of a student or trainee, the use of GenAI in research should be intentional, such that students and trainees will have the opportunity to learn how to conduct research responsibly, both with and without GenAI. Supervisors are encouraged to actively identify and design GenAI-supported and GenAI-free tasks for their students and trainees, as appropriate to their disciplines. The Graduate School, Faculties, Schools, Departments, and Centres should provide guidance and support to supervisors.

35. Students and assistants should seek approval from their supervisors on plans to use GenAI tools in the research process, and the usage should be well documented. Research students should also declare their use of GenAI tools and specify their usage at the time of thesis submission for examination.

36. Research students, trainees, and supervisors are responsible and accountable for the use of GenAI in their research and have to provide justification upon request such as in thesis examination and publication.

37. For research students, the use of GenAI needs to meet the criteria for degree conferral, such as making an original contribution to knowledge worthy of publication in their theses, and should be disclosed.

H. Responsible development of GenAI tools

38. Some researchers develop GenAI software for other people to use. These developers should consider the potential ways in which their software may be used or misused by the different users. Proper safeguards should be in place to minimise risk of misuse.

39. The terms and conditions for use of their software should be clearly stated, including warranty for reliability of output, intellectual properties, and any risks associated with the use of the software.

40. The developers should ensure the use of the system is carefully validated in line with best practice in their discipline.

41. If the interface (e.g., software and web-based solution) involves collection of data, the developer is responsible for ensuring that data are collected in an ethical manner in accordance with the Policy on the Management of Research Data and Records.

42. Researchers in specific disciplines should also be compliant with international guidelines in their disciplines, such as the CONSORT-AI reporting guideline for clinical trials for interventions involving AI in the field of medicine and health sciences.

The above guidelines will not cover all situations when GenAI tools might be used for research discovery, production, and dissemination, especially with new developments in GenAI technologies. In addressing new challenges, responsible researchers will be mindful of ethical issues and concerns, apply general principles of research integrity to address the challenges, and adhere at all times to the highest ethical standards.

September 8, 2025