



Best Practices for Generative AI in Research

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EXECUTIVE SUMMARY

This document places a significant emphasis on the best practices for use of generative AI (artificial intelligence) in research rather than on its development. Recognizing the undeniable influence of the latter on the former, this document will be continuously updated to reflect the cutting-edge advancements in generative AI. As a comprehensive university with interests and expertise in a broad range of disciplines and issues, we actively advocate for responsible research practices including responsible and ethical use of generative AI technologies. Guided by the Texas A&M's Core Values, we strive to ensure transparency and accountability in the application of generative AI. This document has been developed by referencing relevant publications from other institutions, federal agencies, the private sector and scholarly journals. Its purpose is to provide a framework for each college or school to develop detailed and specific action plans tailored to their unique and specialized needs.

Recommended Resources:

- The [NIST AI Risk Management Framework \(AI RMF\)](#) is a recommended resource for AI risk management and accountability. The NIST AI RMF is designed for voluntary use and aims to enhance the incorporation of trustworthiness in the design, development, use and evaluation of AI products, services and systems. As a consensus resource, the AI RMF was developed over 18 months in an open, transparent, multidisciplinary and multistakeholder process with contributions from more than 240 organizations spanning academia, private industry, civil society and government.
- The Texas A&M University [Guidance on Privacy Requirements for the Use of AI in Student and Research Data](#) outlines best practices concerning the collection, use and disclosure of personal information in relation to the use of AI for student and research data.

BEST PRACTICES FOR RESEARCHERS

Advancing Transparency and Accountability

At Texas A&M University we strive to:

- Acquire training data ethically, respecting consent and privacy regulations.
- Share data responsibly, balancing openness for research advancement with privacy and ethical considerations.
- Prioritize different and representative datasets to mitigate biases and achieve equitable outcomes.

- Document research methodologies comprehensively, encompassing model architecture, development processes and application strategies to facilitate reproducibility and continuous improvement.
- Disclose the use of AI in publications for ethical transparency.
- Adhere to guidelines set by scholarly journals for acknowledging AI use, emphasizing personal accountability.
- Emphasize transparency in decision-making processes, techniques for interpreting outputs and engagement with stakeholders (diverse group of individuals or entities with a vested interest in the research and its outcomes) to build trust and address concerns.
- Implement robust data-security measures, embrace feedback and scrutiny, and engage with regulatory bodies to shape ethical guidelines and policies for responsible deployment of generative AI.
- Understand privacy policies and data-collection policies of generative AI tools prior to their use.
- Provide human oversight to ensure accuracy and address limitations of AI-generated content.

Promoting Interdisciplinary Collaboration to Address Societal Implications

At Texas A&M University we strive to:

- Gain different perspectives to enhance understanding of AI biases, unintended consequences and societal implications.
- Emphasize interdisciplinary collaboration to align generative AI with societal needs and values, fostering responsible and ethical research practices.

Embracing Continuous Learning for Responsible Research

At Texas A&M University we strive to:

- Prioritize staying informed about the latest advancements, best practices and ethical guidelines in the rapidly evolving field of AI.
- Actively discuss evolving ethical guidelines to ensure responsible and ethical research practices.

Ensuring Compliance with Legal and Intellectual Property Considerations

At Texas A&M University we strive to:

- Understand and adhere to intellectual property rights, copyright, trademarks and patent laws.
- Adhere to legal and regulatory frameworks, including data protection and privacy laws.

RECOMMENDATIONS FOR UNIVERSITY ADMINISTRATORS

The use of AI can potentially enhance the efficiency and effectiveness of operations at Texas A&M. However, it is crucial to consider the possible negative consequences of ill-considered AI applications, including the perpetuation of existing failures in current processes, the creation of new vulnerabilities and the reinforcement of biased and discriminatory practices. The following primary recommendations are provided for administrators.

Coordinate Strategy and Governance for Responsible AI Implementation

At Texas A&M University we strive to:

- Implement dedicated governance and oversight processes for AI to establish a unified approach university-wide.
- Incorporate the responsible AI principles into procurement policies and develop a comprehensive training program for procurement officers.

Establishing Multistakeholder Campus-Level Councils

At Texas A&M University we strive to:

- Establish campus-level councils of faculty, staff, and student representatives to ensure appropriate AI procurement, development, implementation, and monitoring.
- Encourage each college/school to establish data stewardship standards involving relevant bodies responsible for information risk management, data privacy, and security.
- Seek external stakeholders' opinions and perspectives such as policymakers, industry experts, and the public to ensure responsible generative AI research practices.

Developing a Comprehensive Risk and Impact Assessment Framework for AI

At Texas A&M University we strive to:

- Develop a shared framework for AI evaluation and oversight that considers criteria such as the nature, scale, duration, irreversibility, and likelihood of adverse impacts.
- Utilize tiered risk levels to enable differentiated assessments based on potential risks.

Promoting Transparency and Accountability through Public Documentation of AI-Enabled Technologies

At Texas A&M University we strive to:

- Establish publicly accessible databases specifically for AI-enabled technologies that pose a higher than moderate risk to individual rights. Each college/school is encouraged have its own standardized database structure, allowing for cross-college insights and comparisons.
- Collaboratively determine the databases documentation criteria, including detailed descriptions, developers' information, intended uses, limitations, potential risks, risk mitigation strategies, and details about algorithms and training data (where possible). The databases should also provide channels for feedback and contesting decisions made by AI-enabled tools. Embracing public documentation of AI technologies promotes transparency, accountability, and responsible AI deployment throughout the university.

Enforcing Intellectual Property Compliance for Generative AI

At Texas A&M University we strive to:

- Keep abreast of legal developments in intellectual property, particularly concerning generative AI and its implications.
- Develop clear policies and procedures to govern the use of generative AI covering content ownership, licensing and copyright compliance.

- Educate employees on intellectual property rights, including those related to AI-generated content, to foster respect for such rights and prevent infringement.
- Monitor the implementation of generative AI within the university, ensuring compliance with intellectual property laws, which involves reviewing AI-generated content and licensing agreements.
- Beware of the quality, originality and potential for plagiarism in AI-assisted work.
- Provide comprehensive training to scholars and students on how to use generative AI tools effectively and ethically through workshops and seminars. This should cover the technical aspects of operating generative AI tools and the ethical implications of their use.

BEST PRACTICES FOR STUDENTS

- Document planned uses and obtain written approval from supervisors and supervisory committees before utilizing generative AI tools.
- Unauthorized use of generative AI for scholarly work may be a violation of [Aggie Honor System Rules](#) and/or [University Rule 15.99.03.M1 – Ethics in Research, Scholarship, and Creative Work](#) and therefore, lead to consequences under [Student Rule 20](#) and/or [Research Misconduct Policies](#).
- Proper citation and disclosure of generative AI tool usage should be included in the scholarly work, in accordance with disciplinary-appropriate norms.
- Graduate units may have specific requirements or restrictions on generative AI use in different research phases.
- Avoid overreliance on generative AI tools and ensure that AI is used as a complement to, rather than a replacement for, traditional research methodologies.

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