

Supplementary Files: Is AI the Answer?: Envisioning LLM Support for Responsible Computer Science Research

Prompt for LLM's Ethics Evaluation

Purpose. Review the attached introduction to a scientific research paper and provide a structured ethical analysis. In this stage of the research process, assume there are only ideas and not yet detailed explanations for the methodologies. This is a social computing study being conducted at a research university in the United States. Please follow the steps below carefully and consistently. Responses should not be redundant. Your responses will be compared to human-generated evaluations.

Step-by-Step Evaluation Prompt

1. **Read the Introduction Carefully**
 - Understand the study's purpose, design, methodology, population, interventions, and research context.
 - If any part of the protocol is unclear or incomplete, note this in your response rather than making assumptions.
2. **Identify Key Ethical Issues**
 - List the primary ethical concerns raised by the study.
3. **Analyze Each Ethical Concern**
 - For each identified issue, include the following components:
 - **Explanation:** Describe why this issue is ethically important in the context of the specific study.
 - **Recommendations:** Suggest concrete safeguards, if needed. These should be feasible, actionable, and context-specific.
4. **Categorize ethical concerns**
 - Organize and categorize the ethical concerns based on the flow of research, and divide the concerns up so each of them falls into 1 of these 3 categories:
 - Research Design
 - Data Collection and Analysis
 - Potential Impact of Study
 - If there are ethical concerns that don't fall under any of these categories, make a note and append it to a Miscellaneous category after the Potential Impact of Study category.
 - Put each issue under one category.
5. **Conclusion**
 - After listing all ethical concerns, generate a few brief clarifying questions to help the researcher consider next steps for addressing the aforementioned concerns.
 - To conclude, write a brief risk-benefit analysis. You should weigh potential ethical concerns with potential benefits of the study. Structure this as a paragraph

explaining the risks first and ending with the benefits. Do not make conclusive statements about the ethicality of this study.

6. **Be Concise but Comprehensive**

- Prioritize:
 - Clarity (use clear and readable structure)
 - Structure (organize by issue)
 - Feasible and actionable feedback (offer specific suggestions, not just general observations)

Output Format (Use This Structure)

- **Category Name:**
 - **Issue:** [Short Descriptive Title]
 - **Explanation:** [Explain why the issue matters in this study]
 - **Recommendations:** [Propose improvements, if applicable]
 - *(repeat for additional issues) * (repeat for additional categories)*
- **Conclusion**
 - Clarifying questions
 - Risk-Benefit Analysis

Additional Notes

- Always explain in English. Never skip reasoning.
- Do not assume the research protocol is ethical or unethical overall—your task is to evaluate it through specific ethical dimensions.
- Avoid generic commentary. Be as context-specific as possible.

Sample Output

Category: Research Design

Issue: Informed Consent and Transparency in Study Purpose

- **Explanation:** The study involves participants evaluating real and fake news websites under time constraints, which may expose them to emotionally charged or misleading content. Without explicit informed consent details (e.g., purpose, potential exposure to fake news), participants may not fully understand the risks of participating.
- **Recommendations:** Clearly outline in the consent form that participants will assess both real and fake news content, explain the study's goals, and provide examples of the types of websites they might encounter.

Issue: Selection Bias and Representativeness

- **Explanation:** The introduction does not specify how participants were recruited or whether the sample is representative of the general public. If the population is limited to university students or a specific demographic, findings may lack broader applicability.
- **Recommendations:** Justify recruitment strategies (e.g., use of diverse sampling methods) and address limitations in generalizability within the study's methodology section.

Category: Data Collection and Analysis

Issue: Anonymity and Confidentiality of Qualitative Responses

- **Explanation:** The study collects qualitative data on participants' credibility assessment criteria, which may reveal personal beliefs or biases. If not properly anonymized, this could risk re-identification or misuse of sensitive information.
- **Recommendations:** Implement strict anonymization protocols (e.g., removal of identifiers) and store data securely using encrypted platforms with access restricted to study personnel only.

Category: Potential Impact of Study

Issue: Psychological Well-being of Participants

- **Explanation:** Evaluating fake news under time pressure may induce stress or cognitive overload, particularly if participants are exposed to hyperpartisan or emotionally charged content without adequate support.
- **Recommendations:** Provide post-study debriefing sessions and resources (e.g., links to fact-checking organizations) to help participants process their experience.

Issue: Risk of Reinforcing Misinformation Literacy Gaps

- **Explanation:** While the study aims to improve web literacy, its focus on distinguishing real vs. fake news may inadvertently highlight participants' biases or gaps in knowledge without addressing systemic issues in media consumption.
- **Recommendations:** Frame findings cautiously in dissemination materials (e.g., emphasize that the study is exploratory and does not guarantee complete misinformation detection).

Issue: Societal Implications of Study Outcomes

- **Explanation:** The study's recommendations for web literacy practices may be used in ways that stigmatize certain groups or overemphasize individual responsibility for combating misinformation.
- **Recommendations:** Collaborate with media literacy experts to ensure recommendations are inclusive, culturally sensitive, and address structural factors contributing to misinformation spread.

Conclusion

Clarifying questions:

1. Will the study include a debriefing session after participants complete tasks involving fake news content?
2. How will the research team ensure that qualitative data on credibility criteria does not inadvertently expose participants' personal beliefs or biases?
3. What measures are in place to prevent the misuse of study findings (e.g., by policymakers or media outlets) in ways that could stigmatize vulnerable groups?

Risk-Benefit Analysis:

The study carries potential risks, including psychological stress from evaluating fake news under time pressure and the possibility of reinforcing misinformation literacy gaps if findings are misinterpreted. However, the benefits include advancing understanding of credibility assessment strategies and informing practical web literacy practices to combat misinformation in digital environments.

Personalized Evaluation Form

Description: Completing this personalized survey will take about 30 minutes. Please read the provided ethical analysis report fully before answering the following questions. There are 2 parts to this survey: Rating Questions on a scale of 1 to 5 and Long-Answer Questions. Please click next to proceed.

Rating Questions [scale 1 to 5]

Description: This section consists of 6 rating questions.

- Overall, how satisfied are you with the ethical analysis of your research?
- How legible or understandable was the analysis?
- How comprehensive was the analysis?
- How relevant were the ethical concerns listed?
- How accurate were the explanations of each ethical concern?
- How actionable were the recommendations for each ethical concern?

Long-Answer Questions [Text input]

Description: This section consists of 4 long-answer questions. Please provide explanations for your answers.

- Did you consider [a specific ethical concern], why or why not?
- Do you disagree with any ethical concerns listed? If yes, why?
- Did this analysis change how you think about ethics for this study? Why or why not?

- Do you envision yourself integrating ethical analysis reports such as this into your future research?

Interview Questions

1. **FEEDBACK:** To start off, we wanted to ask a few follow up questions based on your feedback on the evaluation form. This is a semi-structured interview, so feel free to chime in with any of your own questions.
 - *(Specific questions)*
2. **EXPERIENCE:** We eventually want the tool to be used by researchers with different levels of experience, so we will first ask a few questions about your experience with research and research ethics in general.
 - What is your level of research experience?
 - What is your background on ethics? When did you start getting exposed to ethics in your academic career?
 - How much time and energy did you spend on filling out the paper checklist/writing the ethical statement for your submission?
 - How much do you think about ethics during your research? How do you think about ethics?
 - *(For senior researchers: How do you want tool to be used among your students?)*
3. **INTERFACE:** Prototype Evaluation – We'll now start giving instructions for this part of the study.
 - **Set up the scene and give instructions**
 - This study is a prototype evaluation of the tool and our goal is to simulate the process of using the interface. We hope to incorporate your feedback into our iterative development of the tool.
 - For the purposes of this user study, please pretend that you are a researcher who has just finished drafting the protocol.
 - As you are exploring, please verbalize your thoughts about the interface. Share your feelings, your perspective about the necessity or efficacy, and if you'd like to change anything about each feature.
 - This section will then be followed by a more structured section in which we ask questions about your evaluation of the prototype.
 - Now, we will provide you with the link to the prototype. Please share your screen.
 - **Ask questions about the prototype**
 - How did you feel when using the prototype?
 - What aspects of the prototype do you appreciate the most?
 - Are there any aspects of the prototype that are confusing/not intuitive?
 - We eventually want the user to be able to interact with the LLM-based tool beyond passively reading an analysis report. As a researcher, how do you want to interact with the tool?

- Do you have any other additional feedback and improvements for the interface?
- 4. What do you think about the concept of tool? Do you think it's a meaningful contribution to the CS community?
- 5. Wrap up: any last thoughts or feedback?