

# Impacts of AI and ML in Research

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- Does your institution have policies on AI?
  - Yes, in the academic/educational enterprise
  - Yes, in the research enterprise
  - We have policies on AI in both.
  - We do not have policies in either.

**slido**



**What are the major opportunities and challenges for academic research (or in international areas) in view of current and expected future AI/ML technologies? Short text answers.**

① Start presenting to display the poll results on this slide.

# Responses

- Will the US regulate AI like Tik Tok, claiming it's a risk of disclosing sensitive information?
- Patent law (from research inventions) will likely get challenged?
- Doesn't AI challenge the notion of originality rather than moving towards attribution of original research.
- Opportunities: language learning and translation, tech transfer for myriad uses of AI
- Who evaluates 'the truth' and the efficacy of effective research methodologies.
- Challenges: integrity, accessibility, data governance
- Ethics & integrity with publications & proposal writing. Research Integrity in all its complexities is a huge risk
- New tools - stimulate new ideas
- Defining ownership. Defining originality
- Automation of some research admin work is an opportunity
- Data science and new models in SO MANY areas
- Vendors begin to introduce AI into products licensed by universities whether or not universities are on board with using AI.
- Data analysis going to a local minimum. Perpetuating and amplifying biases
- Need to embrace, because it is not going away.
- RCR
- Opportunity: Student learning
- Teaching acceptable uses of AI in research
- Hiring, policy
- Public good research away from corporate focus
- Internal large language models for research operations
- Efficiency of transactional processing
- Integrity
- Policy development
- Bias/bias reduction
- Academic dishonesty/research integrity
- Challenges in publication ethics and data sharing along with fake data. Opportunities with rapid expansion. Of New knowledge
- Concern that researchers will use generative AI to complete administrative sections of their funding applications, as a means to ignore any new requirements meant to drive critical thinking and culture change (e.g. requirements to provide an EDI plan, a HQP training plan, a research security risk mitigation plan).
- Concerns about research misconduct reaching into previously unthought-of domains.

# Responses

- Concerns about inherent bias of AI tools - the training data drive the decision process.
- Opportunities to achieve major knowledge and discovery leaps in areas from medicine, environmental, defense, and other research themes.
- Major challenge is the need (requirement!) to decolonize extant and future data sets and move toward general intelligence (GI).
- Challenge: ensuring that development of AI on the global scale is consistently aligned with principles of responsible AI (e.g. from the 2017 Montreal Declaration). Those who ignore these principles may develop AI/ML technologies more rapidly, providing short-term gain at the cost of integrity, equity, and public safety.
- Challenges: bias in the underlying datasets, misinterpretation of results. Opportunities: discovery from deep analysis of large datasets in narrow disciplines.
- Research Opportunities: ability to use AI to answer research questions that were difficult to answer in the past (e.g. big data). Research Challenge: research misconduct.
- Potential for accelerating and refining research outcomes
- Ensuring ethical standards and practices
- Great potential for find patterns in large data set and image processing
- Need guidelines and limitations on uses
- Research productivity accelerator.
- Trusted applications of AI/ML.
- Human-machine teaming
- New opportunities for collaborative research with the humanities and social sciences and AI/ML such as human interfaces, ethics, gender & ethnic studies, and business.
- Dynamic computing advances;
- Unethical research and researchers
- Major opportunity is the chance to automate/accelerate discovery and innovation. Major challenge is the legitimacy/validity of results produced via AI/ML. ELSI issues in this space are not well understood.
- Clear Federal guidance or lack there of
- Educating the public
- Getting crowded
- Truly utilize the capabilities
- Getting past the fear...
- Security
- Acceleration
- Ethics challenge