



# **AI & AI: Exploring the Contemporary Intersections of Artificial Intelligence and Academic Integrity**

**Canadian Society for the Study of Higher Education (CSSHE)**

May 15-17, 2022

Rahul Kumar, Brock University  
Michael Mindzak, Brock University  
Sarah Elaine Eaton, University of Calgary  
Ryan Morrison, George Brown College

Session info: May 17, 2022 - 14:30 - 15:45 EST Live panel (online)

# Land acknowledgements and Introductions

We recognize are on the ancestral lands of Indigenous peoples who made their home here for millennia before settlers arrived from Europe and beyond. We honour all of the Indigenous peoples on whose lands we now make our home. We recognize that acknowledging territory is only the beginning of cultivating strong relationships.

Rahul Kumar and Michael Mindzak - Brock University sits on the traditional territory of Anishinaabeg and Haudenosaunee peoples, many of whom continue to live and work here today. The territory is covered by the Upper Canada Treaties and is within the land protected by the Dish with One Spoon Wampum Agreement. Today these lands are the home to many First Nations, Métis, and Inuit peoples and acknowledging them reminds us that our great standard of living is directly related to the resources and friendship of Indigenous people. Recognition and respect are essential elements of establishing healthy, reciprocal relations. These relationships are key to reconciliation.

Ryan Morrison, George Brown College – My settler ancestors were given indigenous land by the colonizer government in Treaty 60, territory of the Anishinaabe; and Treaty 29, historical territory to the Wendat, Attiwonderonk (Neutral) and Mississauga people. I acknowledge these and other injustices of colonization, and I am committed to reconciliation of settler/ indigenous relations in the spirit of the Seventh Fire.

Sarah Elaine Eaton, the University of Calgary, is situated on lands of the People of the Treaty 7 region of Southern Alberta, which includes the Blackfoot Confederacy, the Tsuut'ina First Nation, and the Stoney Nakoda. The city of Calgary is also home to the Métis National of Alberta, Region 3.

# Panel Overview

Panel Chair: Dr. Rahul Kumar

1	Ryan Morrison George Brown College	<b>Large language models: An overview for educators</b>
2	Sarah Elaine Eaton University of Calgary	<b>Academic integrity and assessment</b>
3	Rahul Kumar Brock University	<b>Ethical applications with practical examples</b>
4	Michael Mindzak Brock University	<b>Automation &amp; implications for educational labour</b>

# Turing Test - Which one of these texts was generated by a computer and which one was generated by a computer?

**Prompt:** I want to discuss the possibility that we can integrate equity, diversity and inclusion into more curriculum for English language classes.

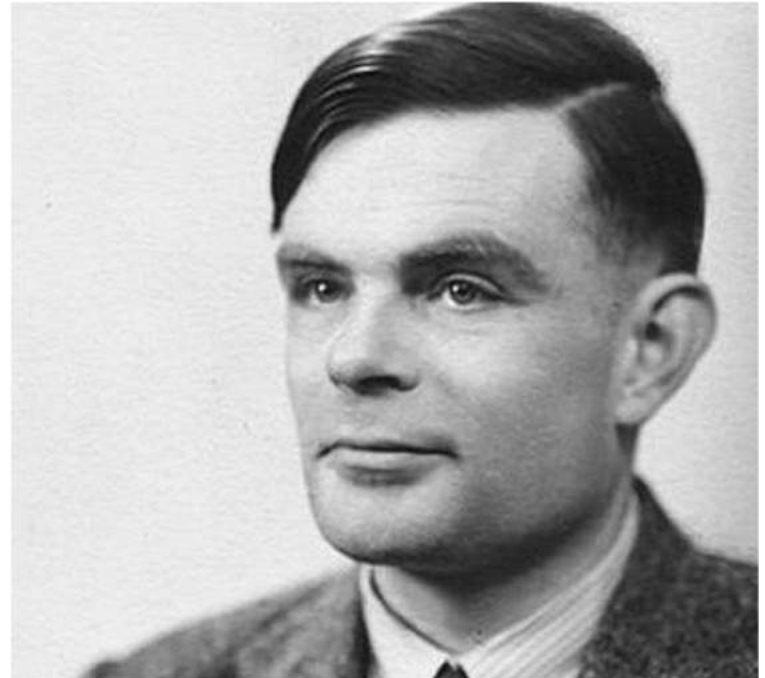


Photo by Unknown author is licensed under [CC BY-NC](#).

# Which one of these texts was generated by a computer and which one was generated by a human?

**Text 1:** First of all, who should do it? Equity can be about more than pay or teacher status. It is also about an equitable curriculum, for example, in our schools. The importance of an equitable curriculum cannot be overemphasized. For example, even though it is my impression that some of the schools may be better than others, there is a need to include inclusive and accessible literature. There is a danger of having some classes be privileged to not do work. The idea of equity in the classroom also means more work is required by students. This should not be seen as a burden. It is an expectation, and one that students need to be given.

**Text 2:** Considering the current discussions being had at almost every level of society, we should be exploring options for material and content that address inequality. Further, many of our students come from marginalized backgrounds, while others come from places where gender/ sexuality and issues regarding race are treated as taboo discussions. Not only will learning a language in the context of these socially pertinent topics benefit students' understandings of these topics, it will also help them navigate discussions that they may be having outside of the language classroom that are occurring.

# Timeline of LLM development 2019 - 2020

**February 2019:** GPT-2 is first exhibited by OpenAI with very limited access to vetted developers due to ethical concerns

**Summer/ Fall 2020:** Limited release of GPT-3. The Guardian's article "A Robot Wrote this Article: Are you scared yet human?" goes viral. Other examples of GPT-3 text passing as human generated text occurs on Reddit and Hacker News.

**November 2019:** GPT-2 powered platforms released to public.

**Winter 2020/ 2021:** GPT-3 platforms are available to the public. Microsoft begins integrating LLM generated predictive text into its Office suite. Google's head of ethics, Timnit Gebru, is fired for refusing to rescind her paper regarding the ethical implications of large language models.



Photo by Kimberly White/Getty Images for TechCrunch - [Via Wikimedia Commons](#)

# Timeline of LLM development 2021 - Present

**Spring 2021:** Large language models expand their functions to coding and image creation. Google, Microsoft, Huawei, Naver and several international academic institutions all create their own large language models. OpenAI claims 300 platforms generating billions of words per day.

**Present:** Meta announces they are publishing an LLM with all of documentation available to the public, in a move directly targeting OpenAI and GPT-3. Research into ethical usage and detection by humans further investigated.

**Summer/ Fall 2021:** Purpose-built platforms targeting academics, content creation and copywriting are available. Microsoft announces partnership with Nvidia creating a large language model 3 times the size of current iterations.

[Short List of GPT-3 Powered text generating platforms.](#)



# Responses

**The most obvious question:** Is there a way to identify algorithmically generated text?

**Answer 1:** No – it's virtually impossible to identify using technology due to the nature of language and the ability for users to 'smooth' content.

**Answer 2:** Kind of – preliminary research indicates people can be trained to identify the hallmarks of algorithmically generated text.

To identify when someone has used algorithmically generated text in their writing is very difficult, and proving it is impossible. Therefore, any instances of suspected academic dishonesty involving algorithmically generated text need to be confirmed through discussion.



# Artificial Intelligence, Academic Integrity and Assessment



Lauralynn Tomassi 04-19 11:38 a.m.



1



Hello [Department of English & Communication](#) Hope everyone's marking push is going better than mine! A couple of questions about AI generated text, based on my suspicion that I'm currently reviewing an essay that no live human could have written... 1. What are common indicators that point to generated text, and 2. Is there any way to prove the text is generated?

Faculty post on George Brown College's Department of English and Communications' Teams site posted: April 19, 2022. Shared with permission.

Teachers are also concerned about identifying suspicious text.

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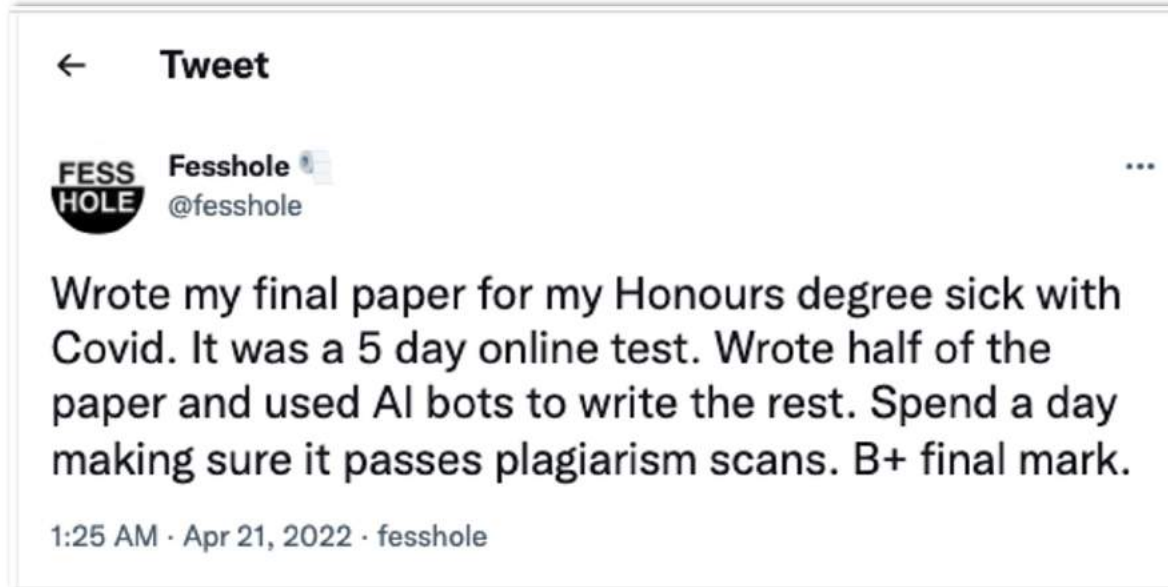
Panel Presentation #2:

## **Academic Integrity and Assessment**

Sarah Elaine Eaton  
University of Calgary



# Artificial Intelligence, Academic Integrity, and Assessment



Student Tweet posted: April 21, 2022

Students are already using AI bots to “help” them write.

## **Artificial Intelligence, Academic Integrity, and Assessment**

Currently, there are more questions than answers about how we can ethically assess student work that is completed in whole or in part by an artificial intelligence.

In this section, I explore some of these questions.

# Artificial Intelligence, Academic Integrity, and Assessment

## Assumptions

- Academic integrity is more than the absence of misconduct. It includes ethical approaches to teaching, learning, and assessment (Bretag, 2019; Morris & Carroll, 2016)
- A “Gotcha!” approach to academic integrity is antithetical to ethical teaching (Eaton, 2021; Howard, 2001; Price, 2002)
- Artificial intelligence is already creating new challenges for academic integrity (Lancaster, 2022; Wilder et al., 2021)

# Artificial Intelligence, Academic Integrity, and Assessment

## 5 Key Questions for Consideration

Question #1:

Is it ethical for students to use artificial intelligence to help them write or to write on their behalf?  
In some classes? In all classes? In no classes?



# Artificial Intelligence, Academic Integrity, and Assessment

## 5 Key Questions for Consideration

### Question #2:

To what extent should students be expected (or required) to disclose their use of artificial intelligence technology?

# Artificial Intelligence, Academic Integrity, and Assessment

## 5 Key Questions for Consideration

Question #3:

To what extent should educators be allowed (or required) to regulate the use of artificial intelligence for student learning?

# Artificial Intelligence, Academic Integrity, and Assessment

## 5 Key Questions for Consideration

### Question #4:

How do we (re)consider assessment of student writing when artificial intelligence bots are involved?

# Artificial Intelligence, Academic Integrity, and Assessment

## 5 Key Questions for Consideration

### Question #5:

What conversations do we need to be having about artificial intelligence, assessment, and academic integrity that we are not currently having?

# Artificial Intelligence, Academic Integrity, and Assessment

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Panel Presentation #3:

**Ethical implications  
with practical examples**

Rahul Kumar  
Brock University

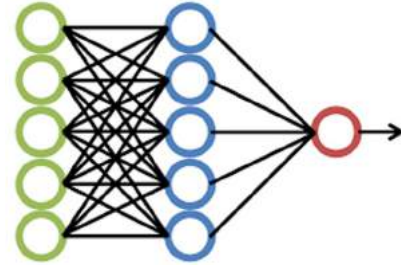


# The case of Mike



- Computer Science student
- Receives low mark in History

The history of the North American settlement has been marked by intermarriage, and by intermingling the various peoples and cultures that had survived the shock of Columbus' voyages. "The Atlantic Ocean," Conant wrote in the poem, "Was not for them/ an



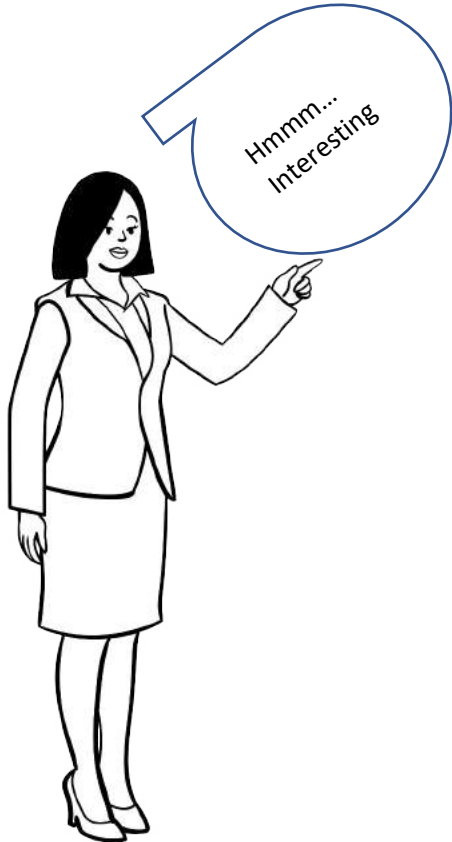
**GPT-3** Neural net image obtained through Creative Commons from Wikimedia Commons



Mike is a bright young computer science student but has chosen to take some electives in History. Noticing that his papers have received low grades, and there is an immense pressure from his parents to finish his education on time so that he can join the franks of earners (they have dipped into their savings to help pay for his PSE), Mike decides to utilize his skills by downloading the GPT-3 source code and customizing the model himself, which produces a paper of adequate quality to be submitted. However, he wonders if this is plagiarism, as he has not written a single word for the paper itself, but he did establish the parameters and generated the text using the software.

Mike is an average student but a divergent thinker. He uses text-generating technology to help him complete his 12-page paper on Applied Ethics. He cites GPT-3 and explains in the footnotes that the machine helped write about X% of the paper (which he subsequently edited), and he did the rest himself. He further argues that this is an original paper. Mike's instructor, Ivy, finds the paper insightful and provocative but is unsure about its implications for academic integrity and how it should be evaluated.

# Teacher Ivy @ the University



OK

Mike is a bright young computer science student but has chosen to take some electives in History. Noticing that his papers have received low grades, and there is an immense pressure from his parents to finish his education on time so that he can join the franks of earners (they have dipped into their savings to help pay for his PSE). Mike decides to utilize his skills by downloading the GPT-3 source code and customizing the model himself, which produces a paper of adequate quality to be submitted. However, he wonders if this is plagiarism, as he has not written a single word for the paper itself, but he did establish the parameters and generated the text using the software.

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- GPT-3 was referenced
- X % was generated by the AI technology

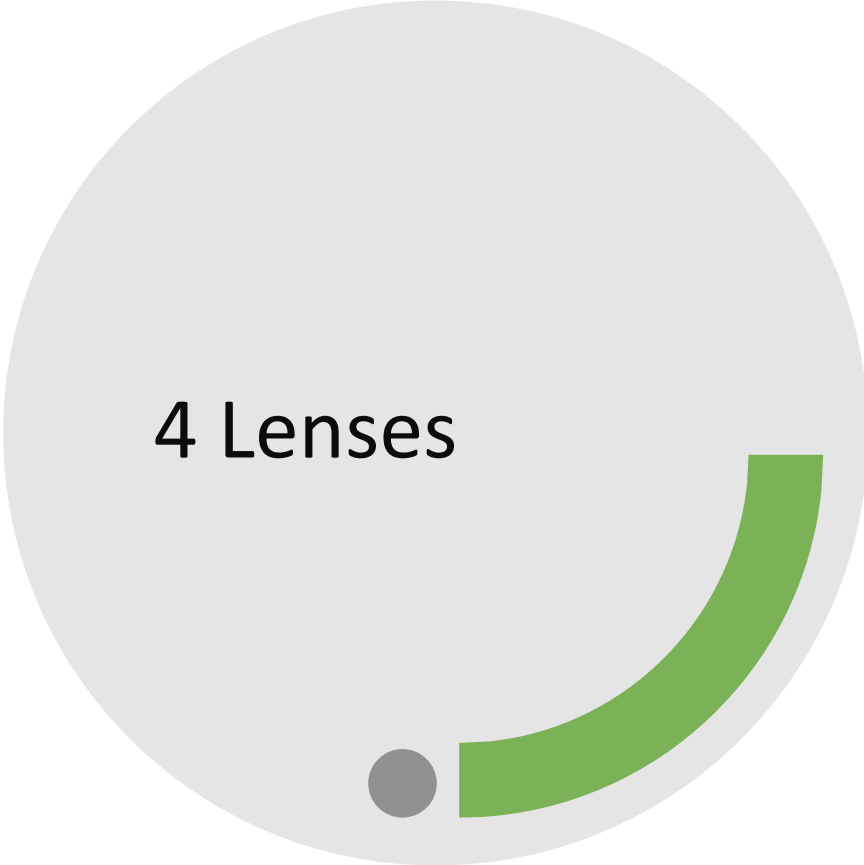


- Does the essay prepared by Mike constitute plagiarism?
  - Why or why not?
- Ivy wonders: Is this a violation of Academic Integrity?
- How should Ivy assess Mike's paper?
- Does it matter if **X** is 10 or 50 or 90?
- How are we to make sense of this ethically?
  - Based on which Ethical stance?



# Questions

- **Deontology** – Kant’s Categorical Imperative (Paton, 1971)
- **Utilitarianism** – Bentham/Mill versions (Smart & Williams, 1973)
- **Care** – Tronto (1998)
- **Expressive-Collaborative Model (ECM)** of ethics – Walker (2007).



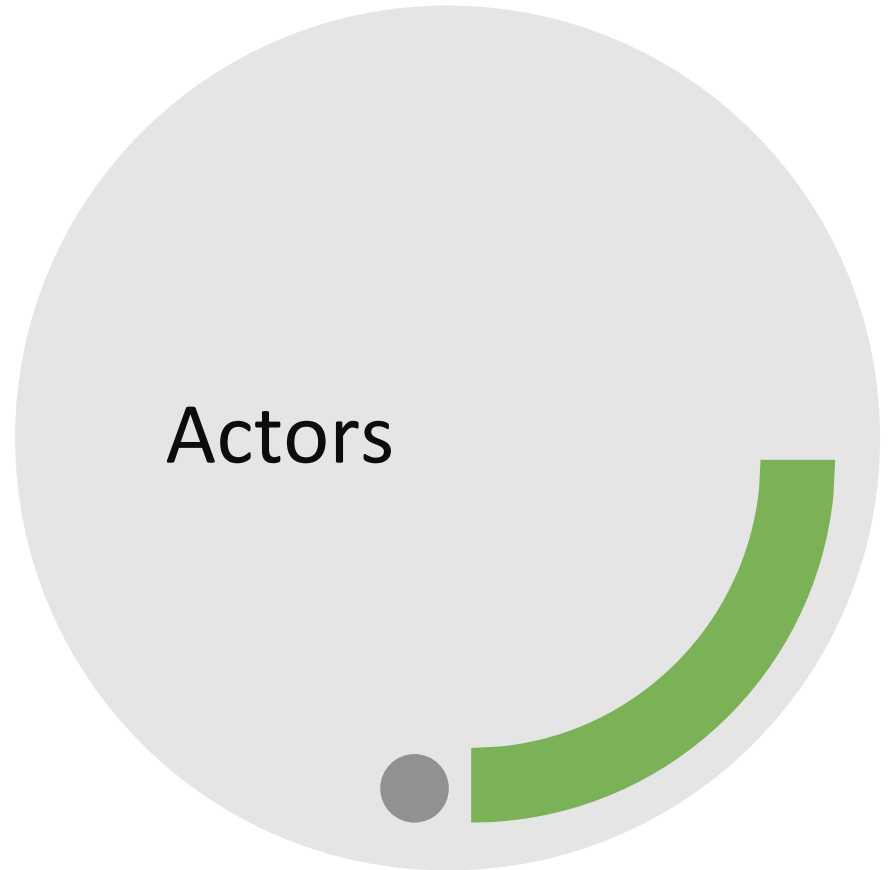
4 Lenses

## Primary

- Mike – Student
- Ivy – Teacher

## But also (**sub-primary**):

- Administrators
- Parents
- Society
- Software (?)

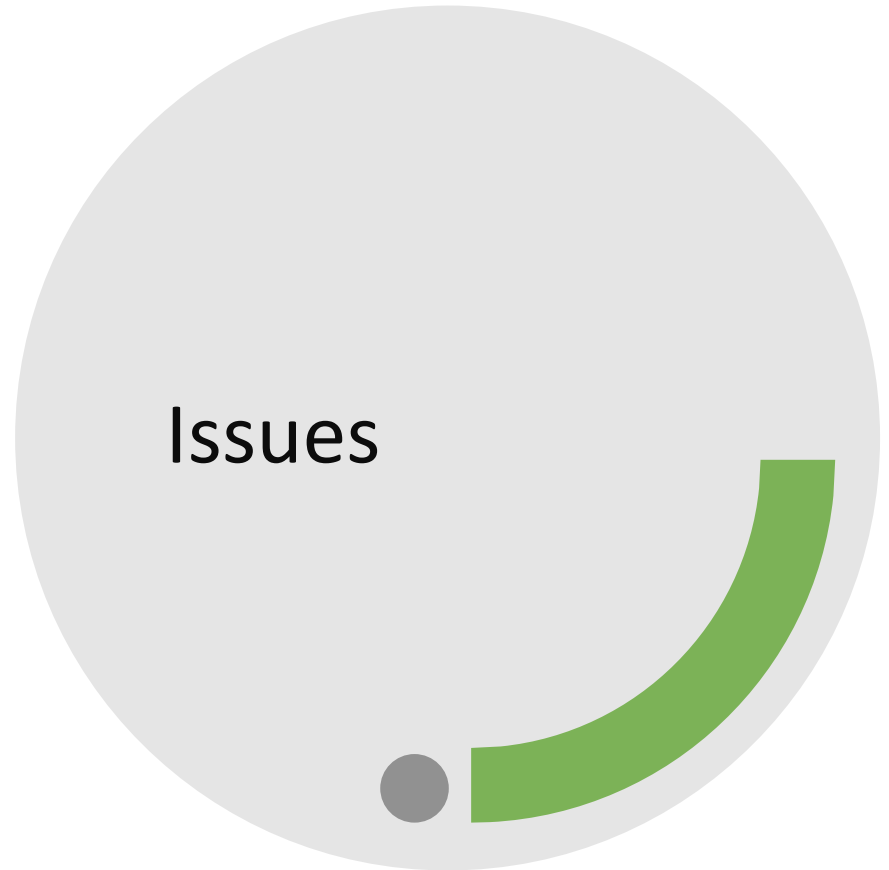


**Deontology** – Unwarranted act was committed. No further concern.

**Utilitarianism** – What would cost more? What act has greater utility? Whose utility ranking is more important?

**Care** – for whom? Does care need to be recognized as such? Is care to be only among sentient beings?

**ECM** – preferred criteria may change over time but intentionally.



- How are practices to be altered?
- What is the role of various actors – primary and sub-primary?
- How is PSE going to respond? It is not a future problem or fictitious issue.
- Do we need more technology to combat the problem technology begets?



## Implications

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Panel Presentation #3:

**Automation & implications for  
educational labour**

Michael Mindzak  
Brock University



# Introduction

As we begin to explore the vast implications of new technologies, particularly artificial intelligence (AI), in the field of education, we might also consider how simultaneous developments might impact the work and labour of educators within this evolving context. This paper provides a theoretical and conceptual analysis of educational labour in relation to artificial intelligence, automation and academic labour. The analysis is broken down into four interrelated themes.

- Part I      Ed-Tech, AI & Education
- Part II     AI & Automation Theories
- Part III    Automating Educational Work
- Part IV    The Automated Academic?



## Ed-Tech, AI & Education

- Artificial Intelligence and its growth (such as large language models) increasingly ask us to consider how such developments might influence and re(shape) higher education.
- This includes significant concerns such as student writing, academic integrity as well as teaching, learning and pedagogy inside and outside of the classroom.
- With this in mind, we can begin to consider how, as these technologies evolve, they might come to impact the work/labour of academics in various contexts moving forward.

## AI & Automation Theories

- In recent years, with concurrent developments in the field of AI, ideas and concerns surrounding automation have moved to the forefront.
- On the one hand, more critical theories have been put forward which generally posit that improvements in AI will bring about a revolution which will largely replace and displace workers across almost all sectors (“end of work”)
- On the other side, theorists generally believe that AI developments will result in developments by which “the robots” serve as a complementary role to workers—taking on only certain tasks/services (“efficiency”).
- Teachers and teaching, it seems, may be largely resistant to automation, being a “uniquely human activity”.

## Automating Educational Work

- In both theories of AI as well as in practice, there are numerous ideas and instances in practice where automation has found its way into higher education.

**Examples:** Chatbots and Virtual Teaching Assistants, Exam Proctoring, Transcription, LMS's, Analytics, Plagiarism Detection, Etc.

- Similar to the theories outlined above, these are described as either forms of replacement/displacement or else as complimentary/assistive in relation to the work of educators.

## Automating Educational Work

## Writing and Academic Integrity

*If students increasingly utilize AI in their writing, we can say that student writing is becoming increasingly automated.*

*Similarly, if plagiarism-detection is largely determined by AI, then we can say that academic integrity is also becoming increasingly automated.*

On both sides, this then brings us to consider the nature of automation in relation to academic integrity and work by asking—how much of this should be automated and why (or why not) ?

# The Automated Academic?

- Examining AI & AI with respect to writing asks us how we might approach and interrogate larger questions concerning automation and the work of academics in HE.
- In the realm of teaching, AI is posited to take on a role which may automate certain tasks (and thus time) allowing for educators to focus on other aspects of teaching/learning.
- In the realm of research, AI is similar posited to take on a supportive role, improving aspects such as academic research productivity.
- The ethics surrounding academic integrity and academic work remain largely unclear and require further theorization.

## Conclusion

- Technology and academic integrity asks us to revisit perennial questions surrounding academic work.
- AI now add new dimensions to such questions, as HE will be required to respond to efforts towards automation.
- Looking ahead, with concurrent developments witnessed in the field of AI, we can prognosticate that many writing tasks will be increasingly automated.
- Similarly, with the continued growth in online and digital forms of HE, it appears as though AI will be utilized in various forms to facilitate this expansion.
- Through this process, we may began to prognosticate not only what this future might look like, but also to consider what a return to an analog education might entail as well.

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# Discussion and Next Steps





# Key Questions

1. If language skills continue to become more automated, which skills should we be focusing on in traditional writing classes?
2. Assuming that artificial intelligence technologies will become embedded into teaching, learning, and assessment, how do we ensure we are upholding academic integrity and avoiding a “Gotcha!” mindset?
3. As technological tools evolve and our practices with them, how would our understandings of what constitutes “your work” (or originality) change?
4. To what extent should academic integrity “rely” on technology and automation?

# Next steps... Our funded research projects

## Artificial Intelligence & Academic Integrity

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University

## Artificial Intelligence & Academic Integrity

The Ethics of Teaching and Learning with Algorithmic Writing Technologies



UNIVERSITY OF CALGARY Funded by the University of Calgary Teaching and Learning Grants

For more information contact:  
Sarah Elaine Eaton, PhD, [seaton@ucalgary.ca](mailto:seaton@ucalgary.ca)

More info:

<https://drsaraheaton.wordpress.com/2022/04/19/new-project-artificial-intelligence-and-academic-integrity-the-ethics-of-teaching-and-learning-with-algorithmic-writing-technologies/>

# Some of our previous work on this topic...

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## Additional notes

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