



CONTENT CREATION USING AI: HOW AI CAN BE USED TO BUILD COURSES AND LEARNING EXPERIENCES

Stephen Murgatroyd, PhD, FBP_sS, FRSA

Chief Innovation Officer

Contact North | Contact Nord

WHAT IS CHATGPT?

To begin with, it's important to understand that ChatGPT is not an independent company, but rather a trained model created by OpenAI. It is an AI research laboratory based in the United States, with both non-profit and for-profit subsidiaries.

ChatGPT was developed on top of OpenAI's GPT-3 language model using supervised and reinforcement learning techniques, making it one of the most intelligent chatbots available.

Surprisingly, even the creators of ChatGPT did not anticipate its overwhelming success.



How ChatGPT works

ChatGPT is trained using a technique called **Reinforcement Learning from Human Feedback (RLHF)** by OpenAI. Initially, the model was trained using supervised learning where human AI trainers played the role of both the user and AI assistant in conversations.

To create a reinforcement model, the developers used the conversations between the AI trainers and the chatbot as comparison data. They selected responses generated by the model, created multiple alternative options, and asked the AI trainers to evaluate them. OpenAI experts then used Proximal Policy Optimization to set up the final model based on the reward models.

PLUS!



One of ChatGPT's big features is that it can remember the conversation you're having with it. This means it can glean context from whatever you've asked it previously and then use that to inform its conversation with you. You're also able to ask for reworks and corrections, and it will refer to whatever you've been discussing before. It makes interacting with the AI feel like a genuine back-and-forth.

SIGNIFICANT LIMITATIONS OF CHAT GPT-4

- It is trained on information and resources **up to September 2021**.
 - **It hallucinates** – sometimes producing seemingly intelligent responses but which are in fact nonsensical.
 - **It gets things wrong**. Jonathan Schaffer's biography and my catalogue of 42 books. Not good at references.
 - **No source attribution** – the classic AI “black box” problem.
 - It is **repetitive**, especially for longer pieces.
 - When faced with complex or ambiguous questions, **ChatGPT may make guesses instead of asking clarifying questions**, although the developers are working to address this issue.
 - See [Chomsky's critique of ChatGPT](#) as a source of “intelligence” (*sic*).
-

I ASKED CHATGPT TO LIST ALL MY BOOKS..

"Stephen John Murgatroyd is a prolific author and has written numerous books on a wide range of topics. Some of his notable books include":

1. The Three Ways of Getting Things Done: Hierarchy, Heterarchy and Responsible Autonomy in Organizations (2007) **in fact written by** Gerard Fairtlough
2. Innovation Unplugged: Creating a Culture of Innovation (2002) – **doesn't exist.**
3. Life After Debt: How to Prosper Through Non-Financial Retirement (2004) – **doesn't exist**
4. Restoring Hope in America: The Social Security Solution (2012) – **actually published in 1996. Author is Sam Beard.**
5. All Systems Go: The Change Imperative for Whole System Reform (2005) – **written by my friend Michael Fullen.**
6. We Need to Talk About Kelvin: What Everyday Things Tell Us About the Universe (2013) **written by Marcus Chown**

Notice it did not list ANY of the 42 books I have written or edited and published!

Even So...

It is still remarkable and very
useful as my **Digital
Assistant** for content
creation...



EXAMS GPT HAS PASSED

■ ■ ■



New York Bar Exam as well as Law Exams in four US States



SATs with a score of 1,600 (average human score 1.060)



GRA and AP Exams in a range of subjects



Wharton MBA



Stanford Medical Exam – Clinical Reasoning



Sommelier Examinations (Advanced)

CREATING A LEARNING EXPERIENCE

Let's Get ChatGPT's Help as a Digital Assistant

IMAGINE YOU NEED TO CREATE A MICRO-CREDENTIAL QUICKLY...HERE'S HOW ChatGPT CAN HELP..

- Suggest the modules needed
 - Suggest objectives and intended learning outcomes for each module
 - Suggest the structure and content of each module
 - Suggest some available multi-media and print resources for the modules
 - Generate self-assessments, exam questions and other assessment items
 - Suggest teaching notes for 1-hour presentations for each module
 - Suggest video scripts for each module
 - Suggest similar courses you may want to look at
-

I STARTED BY ASKING CHAT-GPT TO MY DIGITAL ASSISTANT

You are my digital assistant and co-developer of a 10-module 24-hour-long micro-credential for people in work to upgrade their skills, knowledge and capabilities related to cybersecurity. I need you to help me create content, assessment tools and presentation ideas. I want to start by you providing an outline of each of the 10 modules. Each module should have: (a) learning outcomes and objectives; (b) up to 10 items of critical content; (c) some suggested open educational resources; and (d) five suggested self-assessment questions.

Let's see what it offered...

**WHAT ABOUT OTHER KINDS OF
CONTENT?**

OTHER FORMS OF CONTENT: MUSIC

AMPER



AIVA

SOUNDFUL

ECRET

MUSE-NET (from OpenAI)

WHICH OF THESE IMAGES WAS AI GENERATED?

Image 1



Image 2



TWO IMAGES CREATED FROM DEVINCI.AI

(6 SECONDS)



AI ART FROM DALL-E

I asked DALL-E to create a watercolour of the mountains near Jasper.. It produced this in 21 seconds



PICASSO..

A Canadian politician!



FOR MY NOVEL..

A middle-aged, smart but lonely woman who loves data and is very prim and proper eating alone in a restaurant



FOR THE OTHER NOVEL..

(3RD ATTEMPT!)

This is AI generated with some editing.

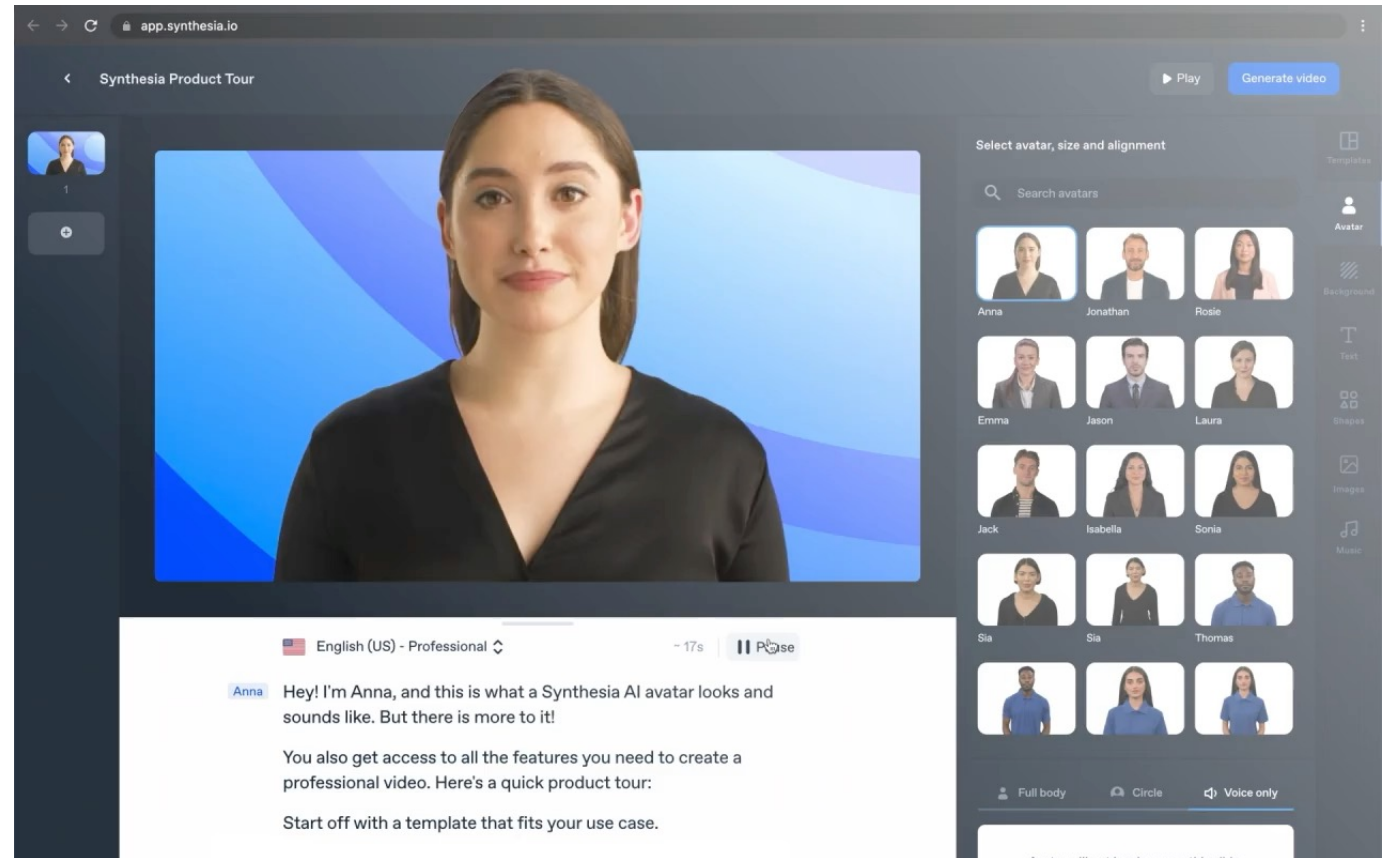


SPEECH TO TEXT AND TEXT TO SPEECH

- Think about teaching ESL and the ways in which we can leverage technology to help ESL students read what they say or say it and then read it?
- [Example 1: Text to Speech](#) | [IBM Watson](#)
- Example 2: Speech to Text

TEXT TO VIDEO

- Key features:
 - Quick and quirky
 - Multilanguages
 - Lots of options to customize
- Quality is gradually improving



POWER POINT AUTOMATION

beautiful.ai (US\$12/month) automates slide creation and has a significant library of resources (images, templates, etc.) – integrates fully with PowerPoint

Similar tools include **designs.AI**, **kroma.ai**, **deckrobot.com** and several others

AI Enhancing Education: Six Innovative Uses

Generated by beautiful.ai in 28 seconds

- AI can be used to create personalized learning experiences
 - AI can be used to create personalized learning experiences tailored to the individual needs of each student
- AI can be used to generate content for lectures, classes and online learning
 - AI can be used to generate content for lectures and classes, such as videos, slides, and other materials
- AI can be used to assess student performance
 - AI can be used to assess student performance and provide feedback on their progress
- AI can be used to provide real-time support for students
 - AI can be used to provide real-time support for students, such as answering questions or providing guidance on assignments
- AI can be used to create virtual classrooms
 - AI can be used to create virtual classrooms, allowing students to interact with each other and the instructor in a virtual environment
- AI can be used to create interactive learning experiences
 - AI can be used to create interactive learning experiences, such as simulations and games, that engage students in the learning process

COLLECTING RESOURCES: MILANOTE, FLIPBOARD AND OTHER TOOLS

- **Flipboard** is a content aggregator – you share your interests, and the system finds material of relevance and pushes it to you daily.
 - **Milanote** is similar to **Evernote** but has richer functionalities. It is a strong collaborative space.
 - Apple users can make use of **Freeform**
-

9:41 AM Mon Jun 8

< Mural Project

VOLUNTEERS FOR
THEIR TIME —
HOW MUCH WILL
BUDGET ALLOW?

Food
History
Local Businesses

SOCIAL MEDIA
POST IDEAS

- Proposed Artwork
- Call For Submissions
- Site "before" photos
- Progress photos
- FINAL MURAL
- COMMUNITY SELFIES

Community Activation

- ask local residents for input
- get youth volunteers to help with painting
- photography students from highschool for photos?

MURAL
PROJECT

Team: Michael - Lead
Carson - Comm Outreach
Neha - Designer

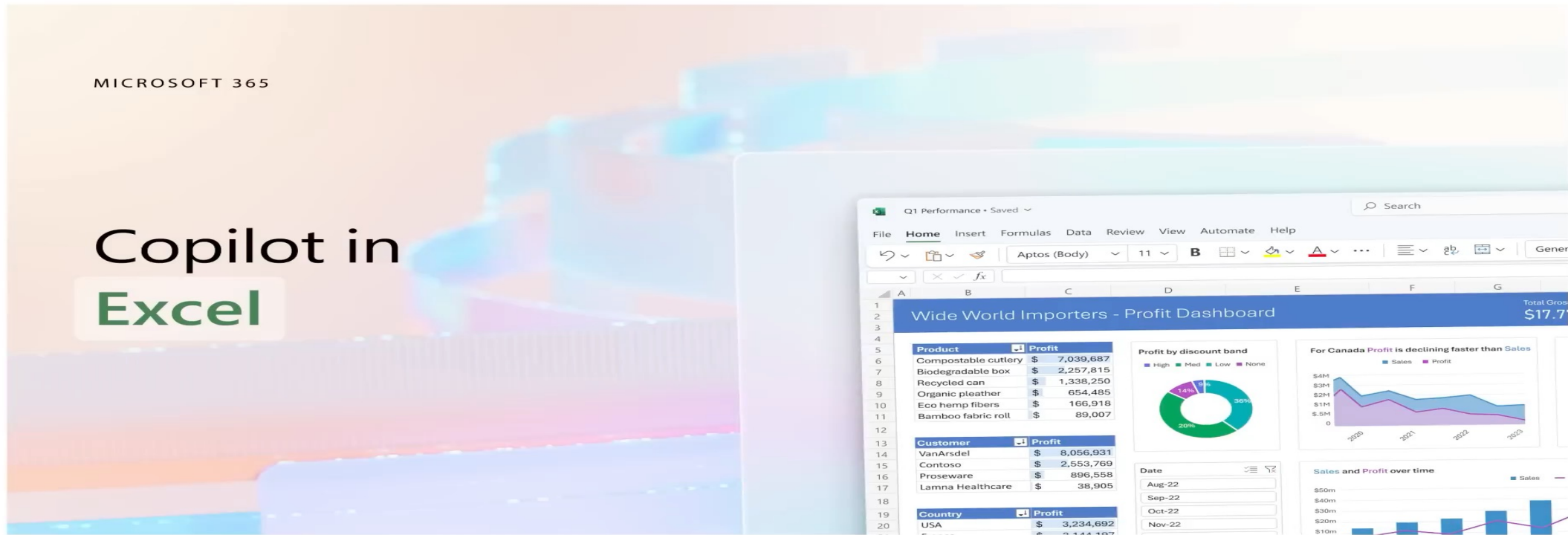
NEHA WILL MAKE A
SOCIAL MEDIA ACCT. TO
DRUM UP ATTENTION.
ACCT. NAME IDEAS:



200D

AI AND EXCEL | DATA

The arrival of Copilot



WHAT'S NEXT?

- Leveraging deep-fake technologies for teaching – chatting with George Washington, Stalin, Pierre Trudeau or Wayne Gretzky..
- Immersive technologies for a guided tour of...well anything...a deep mine, a car factory, museum..
- Terrific tutoring for any subject 24x7 by a chatbot that knows it all...
- Integration of AI into word (already done), PowerPoints (done) and Excel



I asked beautiful.ai to tell me..

The 6 Most Likely Developments in AI for Higher Education to 2030

- **AI-assisted learning**

AI-assisted learning will enable students to learn more efficiently and effectively by providing personalized instruction and feedback.

- **AI-driven assessment**

AI-driven assessment will allow for more accurate and timely assessment of student performance.

- **AI-powered research**

AI-powered research will enable universities to conduct more in-depth research and analysis.

- **AI-enabled collaboration**

AI-enabled collaboration will facilitate better communication and collaboration between students, faculty, and staff.

- **AI-driven automation**

AI-driven automation will reduce the amount of manual labor required for administrative tasks.

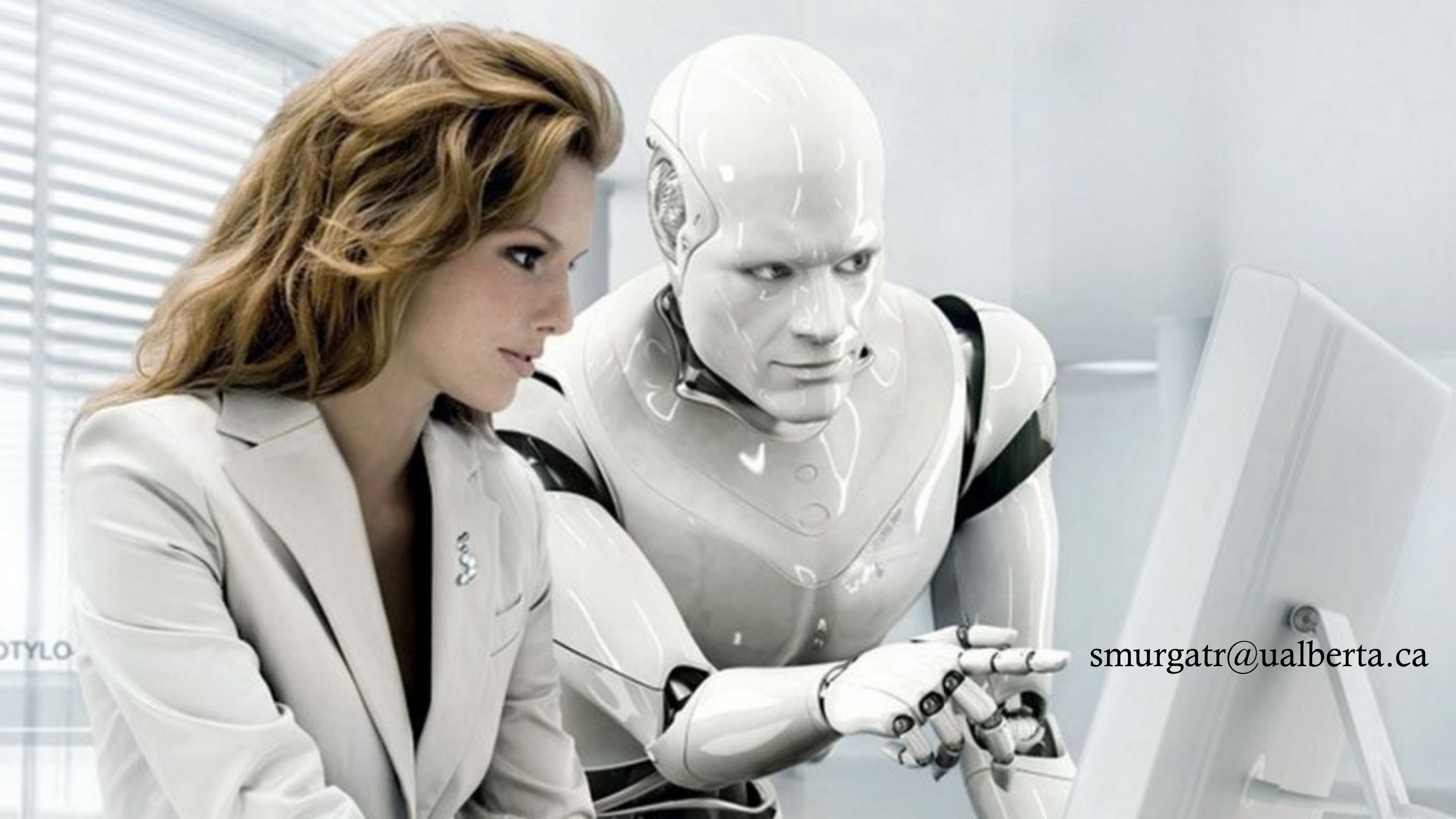
- **AI-powered analytics**

AI-powered analytics will provide universities with valuable insights into student performance and other data.

IN SUMMARY

- We can use AI as digital assistants to accelerate our work and become increasingly productive.
- We can use AI as a research assistant to discover ideas, resources and materials we didn't know about – **but cautions!**
- We can use ChatGPT to improve our writing..
- We can create images, videos and other resources faster..
- We can write code..

AS AI BECOMES MORE UBIQUITOUS, THERE WILL BE MORE THINGS SUCH SYSTEMS CAN DO TO HELP US BE ENGAGING, PASSIONATE AND EFFECTIVE TEACHERS.



smurgatr@ualberta.ca