INFORMATION SYSTEMS EDUCATION JOURNAL

Volume 22, No. 4 September 2024 ISSN: 1545-679X

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The **Information Systems Education Journal** (ISEDJ) is a double-blind peer-reviewed academic journal published by **ISCAP** (Information Systems and Computing Academic Professionals). Publishing frequency is five times per year. The first year of publication was 2003.

ISEDJ is published online (https://isedj.org). Our sister publication, the Proceedings of the ISCAP Conference (https://iscap.us/proceedings) features all papers, abstracts, panels, workshops, and presentations from the conference.

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Teaching Case

Generative AI in practice: A Teaching Case in the Introduction to Management Information Systems class

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Hook

"With how generative AI is evolving, it seems clear that my next hire is going to be a prompt engineer" (Head of global marketing for large multinational software company, 2023). A prompt engineer is someone who writes the prompts for the future of work in an AI-generated world. This teaching case presents two ways to bring generative AI into the classroom, and introduces students to prompt writing.

Abstract

Since ChatGPT exploded onto the scene in October 2022, the media has been breathless with their discussion about how it is going to impact many aspects of life and work. In order to bring this new reality of generative AI into the *Introduction to Management Information Systems* classroom at both the undergraduate and graduate levels, we have developed two short cases that can be completed in or out of the classroom. These cases allow students to use generative AI for an interesting and useful purpose and develop prompts to deliver the output. Students can begin to learn what generative AI can do for them, and how it can shape their future careers. We tested the perceived effectiveness of the project on students using a pre/post survey. The results are analyzed using a paired t-test and demonstrate that students increased their understanding of generative AI and prompt engineering.

Keywords: Generative AI, ChatGPT, Future of work, Prompt engineering, Business process

Recommended Citation: Firth, D.R., Triche, J., (2024). Generative AI in practice: A Teaching Case in the Introduction to Management Information Systems class. *Information Systems Education Journal*, 22(4), pp.29-47. <u>https://doi.org/10.62273/LDVL8354</u>

Generative AI in practice: A Teaching Case in the Introduction to Management Information Systems class

David Firth and Jason Triche

1. INTRODUCTION

Artificial intelligence is changing job roles at a pace that often exceeds the human capability to adapt (Topi, 2019). "With how generative AI is evolving, it seems clear that my next hire is going to be a prompt engineer" (J. Santucci, personal communication, April 3, 2023). A prompt engineer is someone who knows how to get the most out of generative AI, such as ChatGPT, by using specific and useful prompts. There are already YouTube videos on how to do prompt engineering with multi-millions of views (e.g. https://www.youtube.com/watch?v=jHv63Uvk5 VA)/ The "next hire" quote led us to reevaluate what we are teaching in our Introduction to MIS class. As a result of this conversation, we created a teaching case (i.e., final project) in order to help students understand how they could use generative AI to complete important personal and business tasks. The project also uses elements that require the skills of a prompt engineer. This teaching case is about a single class project that can be incorporated into an undergraduate or graduate introduction to information systems class, or a communications class. It is a highlevel project designed to get students starting to think about and using generative AI.

We first introduce students to the basics of generative AI, and some of the different types of generative AI. We then have the students work through two different ways to use generative AI. The first part of the project is to create a video that comes entirely from text prompts. The second part of the project is to start with their resume, and use a C.R.A.F.T. framework (Content at Scale, 2023) to take the output from ChatGPT, or other generative AI platform, to create a cover letter for a job application. Across two semesters we had students complete the video-from-text assignment outside of class, and the cover-letterfrom-ChatGPT in class one semester and outside class the second semester. The projects work equally well completed in or out of class is our conclusion.

2. PROJECT PREWORK

We start class by first asking students if, by a

show of hands, they have used ChatGPT or other generative AI. From this we ask several of these students to tell us what task they have used generative AI for, and what was the name of the generative AI they used. Currently, typical platforms mentioned are ChatGPT, Stable Diffusion, Midjourney and Dall-E, but the list is expanding daily. For instance, Microsoft is deploying Co-pilot for its Microsoft Office suite, and this will undoubtedly become a routine answer to this question.

We next introduce the term generative AI to the class and ask students for their input as to what *generative* means. We take it for granted that students know that AI stands for Artificial Intelligence, but it is still worth mentioning in passing.

Q: What does the term *generative AI* mean?

A: Generative artificial intelligence or generative AI is a type of artificial intelligence (AI) system capable of generating text, images, or other media in response to prompts. Generative AI models learn the patterns and structure of their input training data, and then generate new data that has similar characteristics (Government Accountability Office, [GAO], 2023).

We then give a simple example of what it means when we say, "Generative AI models learn the patterns and structure of their input training data." To do this, we describe simple machine learning. We tell students that the Generative AI models learn by being shown things, letting them quess or deduce the answer using their programming, and then confirming whether the answer is correct or not. For instance, a picture of a cat is one type of input training data. The generative AI should guess this correctly as a cat. If it does not, then it is told that the guess was incorrect. Over time, the generative AI learns what a photo of a cat looks like. From there, generative AI can create new content, as it now knows what a cat looks like. It is worth noting, we actually use the term ChatGPT rather than generative AI, as it seems easier for students to understand the concept with a specific tool.

It is possible at this point to go into an extensive

discussion of the ethics of AI input training data. Although not part of case we are discussing in this paper, we usually talk about two particular cases where AI input training data to solve a problem actually caused more problems. The two cases we discuss are when Google used historic hiring information about Google engineers to train it's AI to be non-biased in the hiring process, only to find that the AI had quickly learned that the historic hiring of engineers at Google was based on a) graduated from Stanford, b) in computer engineering, c) was male, and d) was white. The second example is Wells Fargo, who wanted to fix the fact that loans were being made preferentially by loan agents (who were typically white) to white people. The AI training was specifically told to avoid race as part of its learning process, but quickly figured out from historical loan data that it could substitute zip code as a proxy for race, and so continued the race-biased lending that Wells Fargo was specifically trying to avoid by using AI in the hiring process.

We have also found it useful to use one, or both, of the following publicly available videos to introduce the topic of generative AI. The first is from CNBC and is titled Why OpenAI's ChatGPT Is Such a Big Deal (CNBC on YouTube at https://www.youtube.com/watch?v=pOmpqdIVC oo uploaded February 2023). The second is from Microsoft, and is titled Introducing Microsoft 365 Copilot with Outlook, PowerPoint, Excel, and OneNote (Microsoft YouTube on at https://www.youtube.com/watch?v=ebls5xgb0s, uploaded March 2023). As with any video in a rapidly evolving space, it is possible, if not likely, that these videos will become dated auickly. Nonetheless, we have found these videos to be useful to provide a base level of understanding for students in the introduction to MIS class.

3. FINAL PROJECT DETAILS

Part 1: Text-generated video

Utilizing the benefits of experiential learning (Kolb, 1984), we asked students to use generative AI to complete a task in order for students to grasp the power of generative AI. In this part of the case study, students are asked to create a video using only text input. In order to make the video useful as a final project for class, the video must answer the question: "What is MIS?" We have found this to be a useful question for students since students have to summarize what they have learned throughout the semester.

Prompt for the assignment:

Describe what Management Information Systems is using a completely AI-generated video.

You will create a photo-realistic avatar from a text prompt, develop a script for your avatar using ChatGPT prompts, translate that text script into a voice using a voice generator, and then put it all together in an AI-generated video. The purpose here is to show that you can create a complete, reasonably realistic video from text alone, with the text itself generated by AI. Appendix A contains the entire Project Description.

In the Project Description (Appendix A) we lay out each step for the students. A survey of our students showed that although one or two had used image generative AI, and several had used ChatGPT for text generation, many had not used any of the tools, and so we provided detailed instructions on which tools to use. It is important to note that we focused on which tools to use and also provided limited instructions on how to use the tools. For instance, for image generation there are a lot of options within the image generation platform that are not necessarily obvious. Hence, we made sure students knew to select "photo realistic" if they were using Midjourney as the tool. For the instructor, it is important that we walk through the steps in advance of sharing the assignment or project with students to verify that the options presented here (Appendix A) are still available, are called the same as our instructions, and that the generative AI tool is still available to use for free.

It is important to note that we did not provide any guidance on what prompts to use inside the image generative AI tool. Our approach for class is that it is appropriate to provide specific guidance as to which tool to use, and also on a specific setting that might not be obvious to someone who has never used the tool, (e.g., select photo realistic), but part of the student learning experience is to try writing the prompts themselves.

Once the student has generated a photo-realistic avatar, we give them instructions to use ChatGPT to generate the text for the assignment, What is MIS? We note in our instructions that the prompt is important. We tell students that the prompt will take some effort, as the real key to ChatGPT is how you structure the prompts. We also caution the students that it will be very obvious whether they put effort into this part, or not, and that the effort and thought put in will affect their final grade. That said, we do tell students that they can start with "Create a narrative script explaining what is MIS?" if they have not used

ChatGPT before.

The next part of the assignment is to turn the text generated from ChatGPT into speech. For this we direct students to the ElevenLabs platform (https://beta.elevenlabs.io/sign-up), which is a versatile AI speech generation software product. We tell students that they might need to edit the narrative that ChatGPT outputs before putting it in to the ElevenLabs text-to-speech generator.

At this point it is worth noting an issue that could arise with the use of generative AI tools such as Midjourney, ChatGPT, Elevenlabs and others can become overloaded, or restrict free use, or both. As such, we asked students to reach out via the course online forum immediately if they were finding that the generative AI tool was not available for free. We also asked students to email us if they were using other generative AI tools other than the ones we were suggesting in our project instructions. This way the instructor can quickly be alerted to any issues with lack of free access to the generative AI platforms, and also this provides a way for the instructor, and from there the students, to learn about other generative AI platforms that are out there.

The penultimate step of the project is to take the photo-realistic avatar created in Midjourney, and the AI-generated voice (itself created from a narrative generated by ChatGPT) and combine them to make a video. For this we directed students to the D-ID platform (https://www.d-id.com).

It is worth making sure that students understand that most of these platforms have only a limited number of tries or credits that are free. That is,

there are limits on how many times you can try things out for free on the platform. The D-ID platform is one such Freemium platform (Anderson, 2008) in that it only allows a limited number of free tries. We alert students to this fact so that they are not surprised and are more likely to be careful with their free credits.

The final step in the project is to upload the AIgenerated video output from D-ID to YouTube (www.YouTube.com). We do this for two reasons: 1) As the premier video-sharing platform globally, we feel that students should be proficient in uploading and sharing videos, and this is one way to ensure that every student can do this, and 2) it provides a simple way for students to share their video, including for grading, through the YouTube sharing link. One thing to note here is that we ask students to upload and share an unlisted link. An unlisted link in YouTube means that the video is not searchable and can only be accessed with the exact link. We think that this is important for an assignment that is submitted by the student for a grade.



Links to videos from top left going clockwise

- 1. <u>https://www.youtube.com/watch?v=H</u> <u>7Gf7hMnMt4</u>
- 2. <u>https://www.youtube.com/watch?v=i8</u> <u>DFe1XX51U</u>
- 3. <u>https://www.youtube.com/watch?v=H</u> <u>imMFhk8LoU</u>
- 4. <u>https://www.youtube.com/watch?v=9</u> <u>44_ZYq6bDk</u>

Figure 1 screenshots of created videos

Figure 1 contains screenshots of a small sample of the AI-generated videos answering the question *What is MIS?* from our *Introduction to MIS* class. The links to the actual videos, unlisted, on YouTube have been provided with consent of the students.

Several things are worthy of noting. Firstly, there is an incredibly wide range of avatars being used. Secondly, some of the avatars are close to the student's appearance, others are not close at all. Thirdly, a match between the avatar type and the voice type has an impact on the perceived authenticity of the video. We did not grade for this but did note that when there was a "match" between the avatar type and the voice type, the video did appear much more authentic than when there was no match. For instance, the avatar in Figure 1-4 appears to be a boy from possibly the 1940s. The voice for this avatar was a higherpitched male English voice, which we found a good match for the avatar. Similarly, we found the voice selection for the avatar in Figure 2 a very good match. We did not include this finding or provide it as part of our instructions, but we do

plan on sharing this information with students in future iterations.

Finally, and critically, qualitative feedback from students showed that having to complete this project, and deliver the final project, made them think about what MIS actually means. This seems to result from watching the final video several times over, although we were not able to confirm this hypothesis. Many of the students also told us that they shared the video they had created with family and/or friends. We see this as a useful way to get the message out about what MIS is to a broad audience.

Part 2: AI generated cover letter

While continuing to use experiential learning (Kolb, 1984), part 2 of the final project is to create a cover letter for an employer based on the student's resume. For this part of the assignment, we had students complete the Content at Scale AIO Writer Certification (https://community.contentatscale.ai/courses) and earn the certificate for the AIO Writer program. Content at Scale is a company that "help[s] marketers, agencies, publishers, and content freelancers adapt to AI content without losing human touch; and we empower them to get 9x more profitable and productive at SEO content." (Content at Scale, 2023).

Given our assignment of using generative AI to create a cover letter from a resume, the focus by Content at Scale on "AI content without losing human touch" seems appropriate. The Content at Scale AIO Writer certificate is a short videodriven, AI-optimization (AIO) course that teaches students some basics about how to use generative AI to create written content. The Content at Scale AIO Writer uses a simple framework built around what they call C.R.A.F.T., which is short for:

- 1. <u>Cut</u> the fluff. Ruthlessly delete unnecessary content.
- <u>R</u>eview, edit, optimize. Add in more keywords to optimize the content, following your on-page checklist in the Content at Scale app. Read through and make the content better.
- 3. <u>A</u>dd images, visuals, media. Use screenshots, visual data, graphs, etc. where appropriate.
- 4. <u>Fact-check your content. Never let a fact</u> go without double-checking it.
- 5. <u>T</u>rust-build with a personal story, tone, and authoritative links (external to other high-quality publications, and internally to your own product or service pages, additional content, etc.).

Our goal is to have students complete a useful task with generative AI, creating a cover letter from their resume, and then use the C.R.A.F.T. framework to improve the output from the generative AI.

Prompt for the assignment (see Appendix B for the full prompt):

- 1. Sign up for the Content at Scale AIO Writer training
- 2. Once signed up, complete the AIO Writer Certification
- 3. Place the Content at Scale AIO Writer certificate in a Word document



Figure 2 Content at Scale AIO Writer certificate

4. Write a cover letter for yourself using ChatGPT. Copy and paste your resume into ChatGPT and ask it to generate "a 1page cover letter, based on your resume, that has 3 paragraphs, which are "why you", "why me" and "why us." You will also need to tell ChatGPT a precise career role that you are applying for as well so it can try and make this as specific as possible. To be specific as possible, you cannot say 'I want to work at Nike.' You need to say something along the lines of 'I want to work at Nike in the marketing department with a focus on women's athleisure gear'"

Submit that cover letter in the same Word document. In your assignment submission, below your cover letter (which is itself below your AIO Writer Certificate) you must talk about how you used the C.R.A.F.T. framework that you learned in the Content at Scale AIO Writer training. This should cover what order you did things in, and why, from the C.R.A.F.T. framework, and give a description of how the C.R.A.F.T. framework helped you improve the ChatGPT cover letter output. Depending on what the instructor wants to achieve here, this student self-assessment should be changed. For instance, the student could be asked how relevant the cover letter is for the job, and how

comfortable they would be to use the cover letter, and why.

4. FEEDBACK FROM STUDENTS

We collected anonymous survey data from the students (n=58) to test the effectiveness of the project on whether the students learned how to use generative AI and become better prompt engineers. Prior to starting the project, we administered a pre-test survey using a 7-point Likert scale asking questions like "I know how to interact with ChatGPT", "I am aware of the capabilities of ChatGPT", and "I get the results I am expecting from ChatGPT based on my prompt." After the project was complete, we administered the same survey to determine if there were any increases in student capabilities. We used a paired t-test to test for significance between the pre/post survey results.

The results of the survey are in Table 1. The student survey results show that the mean score increased on each of the survey questions. Each increase was very highly statistically significant. An interesting observation to note is although the increase was significant, the mean of "I am good at writing prompts" post-project is still slightly above the neutral on the Likert scale. This result alludes to the fact that prompt engineering is a complex skill and this project only introduces the skill to the students.

Survey Question	Pre- test	Post- test	Paired t-stat
I am aware of the capabilities of ChatGPT	mean 5.39	mean 6.12	5.8 ***
I know how to interact with ChatGPT	5.03	5.88	5.6***
am good at writing prompts in ChatGPT	3.53	4.70	5.4***
I get the results I am expecting from ChatGPT based on my prompt	4.38	5.16	4.5***

* p<.05, ** p<.01, *** p<.001 **Table 1: Student Survey Results**

Qualitative feedback solicited from students showed several things:

- 1. The assignment itself was very useful indeed to most students. Several did not have a cover letter prior to the assignment, even though they thought it was important.
- Most of students did not really know what should go in a cover letter, so they appreciated the "3 paragraphs, which are 'why you', 'why me' and 'why us'" guidance.
- 3. The assignment instructions that focus on a very specific job role was useful, as most students had not thought about this.
- 4. The output from ChatGPT was very good indeed, with one student saying "I would hire me based on this cover letter!"
- 5. The C.R.A.F.T. framework was a very useful tool to improve the output from ChatGPT. In particular, students liked the "cut the fluff" and "trust-build with a personal story and tone" part of the framework.

5. ISSUES TO CONSIDER

Generative AI platforms are changing constantly, including the amount of access they give. For example, when we first wrote the instructions for the creation of a digital avatar from text, the instructions were to use Midjourney. The popularity of Midjourney meant that its servers became overloaded between the time we wrote the assignment and the time students started the project, a period of less than two weeks. Students were now not able to use it for free to create an avatar.

This issue was reported by a student in our online forum dedicated to these generative AI assignments. The screenshot of the issue, as requested of students finding an issue, is shown in Figure 3.

S ZEON Midjourney Bot Click to see command Z Midjourney Bot ZEON Today at 6:33 AM
Job action restricted Due to extreme demand we can't provide a free trial right now. Please /subscribe or try again tomorrow.
Resubmit

Figure 3 Midjourney error message

As a result, we told students to use Stable Diffusion (www.Stability.ai) instead. After a quick test ourselves, we posted instructions to use Stable Diffusion's "DreamStudio" platform. We also told students that in the DreamStudio platform they needed to select "photographic" from one of the many options in order to generate their avatar.

Just two weeks later, after the students had finished their project, things have changed again. DreamStudio is still an option, but a new option, ClipDrop is now available which would work very well for this project (https://clipdrop.co/stablediffusion). It is therefore important for any instructor using this case to work through the entire case themselves before assigning students to check the current availability of the relevant generative AI tools.

6. RESOLVING ISSUES

It would be easy to get dissuaded from doing these types of assignments with students due to the ever-changing instructions needed to support them.

We addressed this in several ways:

- Be clear with students that generative AI technology is evolving rapidly. As such, instructions that worked yesterday, or even this morning, might not work this afternoon. Let students know that this is not an error. This is just how the generative AI space is. We have found that making students aware of rapid change makes them more accepting of rapid change.
- 2. Ask students to report issues immediately to the online forum and provide screenshots of what the problem is. The student who reported the issue with Midjourney provided the screenshot, Figure 7, that showed what the issue was. It became apparent pretty quickly that we needed to move away from Midjourney.
- 3. Ask students for suggestions for new platforms to use to complete the task. These should be emailed to the instructor, not posted in the online forum so that a vettingand-testing process can be performed. This is an architecture of participation, and if students are aware upfront of their role in helping move the assignment along, we have found that they are very happy to provide suggestions. Figure 1, first image, shows that this student used the Artflow.ai platform instead of Stability.ai DreamStudio to complete their text-to-avatar part of the In order to not have students project. overwhelmed with options, we do think it useful and important for suggestions of new platforms to be submitted to the instructor via email, not in the online forum. For instance, we did not share the Artflow.ai platform with students as the Stability.ai platform was

sufficient for the students to complete this project.

- 4. Ask students how they completed the assignment. We did this by asking students to specify how they utilized the C.R.A.F.T. framework. We could have also asked them to document what prompt they used for their text-to-avatar part of the project, or what "tuning" they used (tuning is what the settings were used in the generative AI tool, such as "photographic" mode in Stability Diffusion for the output), and also why they used these particular settings. Doing this makes the students more aware of the importance of "prompts" and why it is important to think about them.
- 5. Platforms are amalgamating functionality. Our assignment workflow for the text-tovideo was to 1) Use Stability.ai DreamCloud for text-to-avatar creation, 2) use ChatGPT to create the What is MIS? narrative, 3) take that narrative into ElevenLab to create textto-speech, and 4) take the speech output and the avatar into D-ID to create the video. Over the course of the 2 weeks of the assignment we noticed that D-ID started offering avatar creation, so it would have been possible to drop the Stability.ai DreamCloud part of the assignment. We don't think this is a good idea, and we did not let students know that D-ID offered this option. Given the enormous evolution in the generative AI space, we think that exposing students to as many generative AI platforms as possible is useful.

Finally, we want to address how to grade these assignments. First and foremost, the instructor must consider what they want to achieve with the assignment, and what their learning objectives are for their students. Our goal is to get students to use generative AI tools and think about the prompts they are writing to get what they are generating. There is no "right answer." Indeed, having given very specific instructions for the "What is MIS?" assignment, what we found was that generative AI produced a vast array of answers, proving that it is indeed "generative." One powerful way to grade these assignments is to ask students to reflect on what they have produced, and what they have learned in the process. We do that with the document they have to submit with their cover letter, described above. For the video, given our learning objective of getting students using the tool, developing prompts, and thinking about the outputs as a result of those prompts, we use the following basic rubric: "Developed a usable video and demonstrated an understanding of the use of "Developed a generative AI technology",

generative AI video that would not be able to be used as it [pick your issue] "did not address the question it was asked to address", "was not long enough", "was too long", "was not professional enough to be able to be shown publicly" (note: in our class we encourage creativity, so we do not grade for the type of avatar or voice used)", and finally "no submission."

7. CONCLUSION

"With how generative AI is evolving, it seems clear that my next hire is going to be a prompt engineer (J. Santucci, personal communication, April 3, 2023). Preparing our students to be a prompt engineer, someone who writes the prompts for the future of work in an AI-generated world, seems to be a very important educational goal. In this teaching case, we have presented two parts of a final project that allow students to use a range of generative AI platforms. The textto-video assignment has students writing a range of prompts: 1) a prompt to build an avatar from text, and 2) a prompt to write a video narrative about What is MIS? The generative AI cover letter assignment has students writing a ChatGPT prompt, and then editing the output using a framework they have learned to improve the output from written generative AI. This is a critical skill for a "prompt engineer." These two assignments also allow students to use several generative AI platforms, which we think is critical for the future role of a prompt engineer.

The quantitative results and qualitative feedback we have received from students have been overwhelmingly positive. Comments include things that are not common with other assignments in the Introduction to MIS class, such as sharing a text-generated video with family and friends on the topic of What is MIS? Students have told us that the C.R.A.F.T. framework for working with the output of written generative AI is something that they will find useful going forward for a range of tasks.

From a teaching perspective, we allocate 6.25% of the grade to each of the two projects, for a total of 12.5%. We feel that the skillset of prompt engineering in a generative AI environment is relevant, timely, and important enough to allocate a solid amount of the student's grade to it. We have only a simple rubric for both these projects, partly as we need to see what the outputs are from this entirely new approach in order to figure out what a sensible rubric is. One element of the rubric should be the length of the video for the text-to-video project. Given the outputs of that project, we now also feel that a

consideration of the match between the generated-voice and the generated-image should be part of the rubric. Going forward, we also feel that it might be appropriate to have students document the prompts they used in ChatGPT to generate the What is MIS? narrative, and the rubric can then take into account focused and useful prompt writing more specifically. For the ChatGPT-generated-cover-letter, the rubric should assess how the students use the C.R.A.F.T. framework, with points allocated to the quality of consideration and application of each element.

These projects complement the model curriculum objectives in IS 2020: IS Competency Organizational Domain, use and implications for society (Leidig & Salmela, 2021), and the Management Curriculum for a Digital Era (Lyytinen et al., 2021) components of AI and Automation.

One of our unwritten goals for our introduction to MIS class is to make our students dangerous with emerging technology. Dangerous means that we introduce them to the surface of the possibilities of the technology, hoping that they will be sucked below the surface by wanting to learn more. We certainly feel that the two assignments presented here in this case/instructor document achieved this.

8. REFERENCES

- Anderson, C. (2008). Free! Why \$0.00 is the Future of Business. Wired Magazine, Feb 25, 2008. https://www.wired.com/2008/02/fffree/
- Content at Scale. (2023). Ai content generator for Quality Seo Long Form blog posts. Publish high-ranking content instantly. https://contentatscale.ai/. Accessed July 3, 2023.
- Government Accountability Office. (2023). Science & Tech Spotlight: Generative AI. (GAO Publication No. 23-106782). Washington, D.C.: U.S. Government Printing Office.
- Kolb, D. (1984). Experiential Learning: experience as the source of learning and development. Englewood Cliffs, NJ: Prentice Hall. p. 21
- Leidig, P., & Salmela, H. (2021). IS2020 a competency model for undergraduate

programs in Information Systems. https://is2020.hosting2.acm.org/wpcontent/uploads/2021/01/IS-2020-Final-Draft-Report.pdf.

Lyytinen, K., Topi, H., & Tang, J. (2021). Information Systems Curriculum Analysis for the MaCuDE Project. Communications of the Association for Information Systems, 49, pp-pp. https://doi.org/10.17705/ 1CAIS.04939.

Topi, H. (2019). Invited Paper: Reflections on the Current State and Future of Information Systems Education. Journal of Information Systems Education, 30(1), 1-9.

APPENDIX A

Describe what Management Information Systems is in a completely AI-generated video.

You will create a photo-realistic avatar from a text prompt, develop a script for your avatar using ChatGPT prompts, translate that text script into a voice using a voice generator, and then put it all together in an Al-generated video.

The purpose here is to show that you can create a complete, reasonably realistic video from text alone, with the text itself generated by AI.

CRITICAL: You must answer the question "What is MIS?" in your AI-generated video

- 1) Got to Midjourney.com and get yourself an account
- 2) Once logged in to Midjourney, go and click on one of the Newbie areas



 Create an avatar by typing in a prompt that matches what you want Midjourney to create for you.

Make sure you ask for "photo-realistic"

- 4) Go to Openai.org and get yourself an account
- 5) At chat.openai.org use ChatGPT to create a "narrative script" for what you want your Algenerated avatar to say in your video. This will take some effort, as the real key to ChatGPT is how you structure your prompts. It'll be very obvious whether you put effort into this part, or not, and this will affect your final grade. You can start with "Create a narrative script explaining what is MIS?" as a starting point if you've not used ChatGPT before.
- 6) Go to <u>https://beta.elevenlabs.io/sign-up</u> and sign up. This is "The most realistic and versatile AI speech software, ever" according to them. We will use this to turn the ChatGPT script into voice Once you have an account, you click on "Get started for free"

Cut and paste the narrative script from ChatGPT into the Prime Voice AI box



You might need to do a bit of editing from your ChatGPT text – I had to remove the words "narrator" 7) Go to <u>https://www.d-id.com/</u> which will take your photo-realistic avatar and your Al-generated voice script and combine them to make a video. Sign up for an account Click on "Free Trial"

Click "Create Video"



Click "Add" on Choose a presenter and upload your Al-generated avatar



D-ID also has the option to create an avatar here now, which shows how tech firms will continue to add features to their software offerings to create consumer lock-in. Now a user doesn't need to go to Midjourney to create the avatar

Next, upload the voice version of the script we created in 11Eleven

Script		එ Audio	,
ථ Upload	l yo	ur	
own vo	oice		
Create more r	realistic	videos by	

Click on "Generate Video" at the top right of the screen



Get your video by clicking on the "Download" button

▶ 0:15 / 0:15	D-1
🖕 DOWNLOAD 🖂	SHARE▼

 You now need to upload your video to YouTube, make it unlisted, and submit the unlisted link for grading. It is critical that your link is unlisted.

I have a video in Moodle on how to upload to YouTube, but you just need to go to YouTube.com and click on this button, which is top right. You do have to be signed in to do this.

+;1

Once you are there you click "Upload video"



The key here is to change the Visibility to "unlisted". If you get this incorrect and make it Public or Private you will get a zero grade if you don't change this to "unlisted" in a very timely fashion

Visibility

Choose when to publish and who can see your video

Sav	ve or publish
Mał	te your video public, unlisted, or private
0	Private
	Only you and people you choose can watch your video
0	Unlisted
	Anyone with the video link can watch your video
0	Public
	Everyone can watch your video
	Set as instant Premiere (?)

Get and submit YouTube shareable link to Moodle for grading



The very short video (too short for this assignment, as it was just a test) I created is here. I also used a photo not an avatar. You must create a photo-realistic avatar. https://www.youtube.com/shorts/H5pL25SC9JM

APPENDIX B

	Content at Scale
1	Go to this website: https://community.contentatscale.al/courses
	Contern at Scale
	Welcome back! © The plur institut backer to recorder as straight the first institution function institution function institution function function institu
	Create a new account by hitting the "Sign up" button
2	Conset is later

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Content at Sca	and Tell us about yourself To avour the a will be there in par will be and an entropy and a company of a property of a financial property of a financial Use a company of a financi	erer		







8	Use the AIO Writer to write a cover letter for yourself.
	In your assignment submission, you must talk about what order you did things in, and why, from the
	CRAFT framework
9	Your final assignment submission will be a Word document (or pdf) that contains three things:
	1) Screenshot of your AIO Writer Certifcate with your name
	2) Your Content at Scale AI-written cover letter
	3) A description of how and in what order you used the Content at Scale AIO Writer CRAFT framework
	to achieve your Al-written cover letter