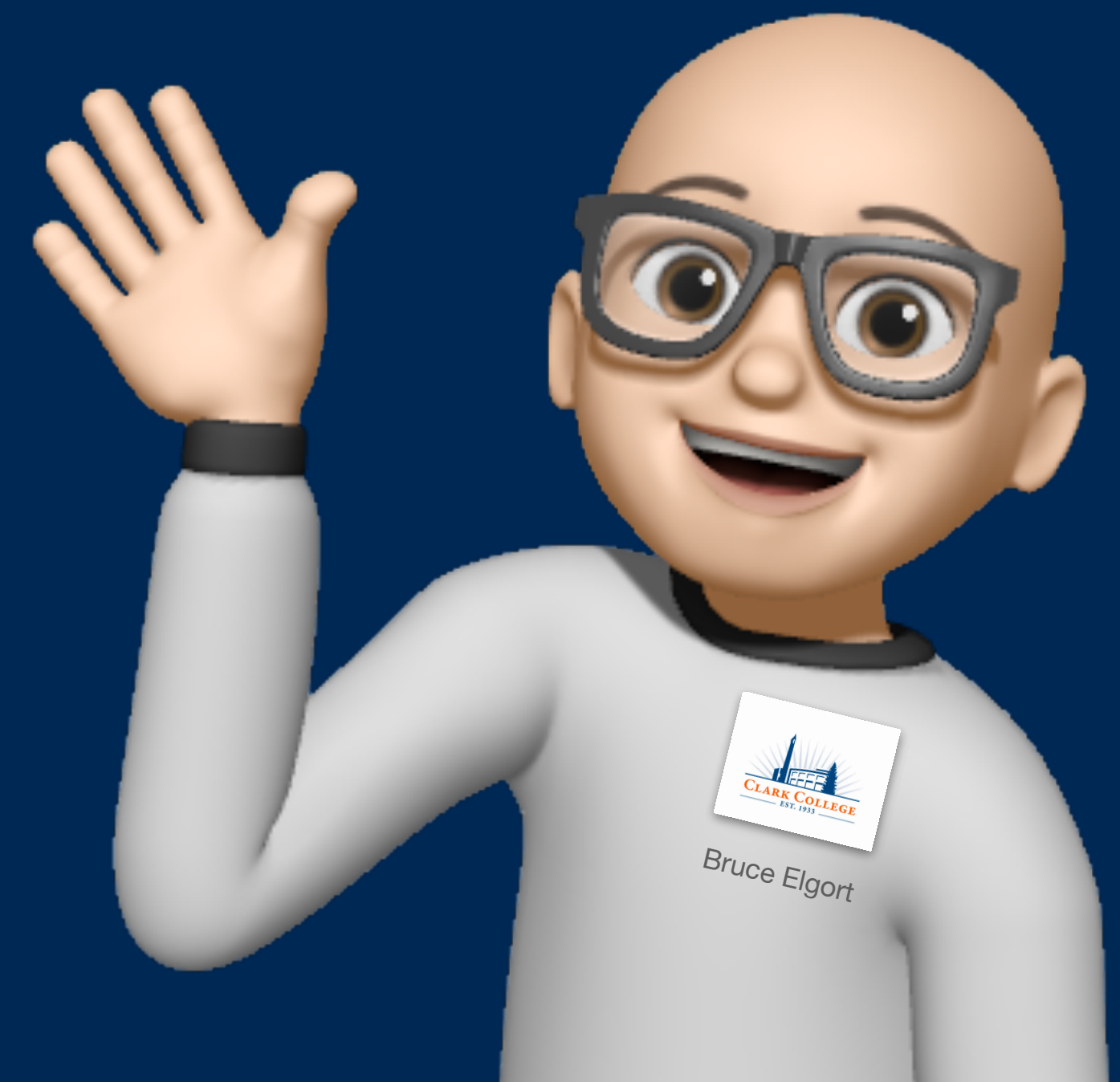


AI in Higher Education

Bruce Elgort
Clark College
Tenured Professor
Computer Technology

October 25, 2023



November 30, 2022

OpenAI releases **ChatGPT** to
the world

AI is not new...

1950 - Alan Turing developed the
Turing Test

Isaac Asimov proposes the three
laws of robotics

AI is not new...

1951 - The first AI program was written

1955 - The first self learning game playing program was written

AI is not new...

1959 - the MIT AI lab was set up

1961 - The first robot was
introduced into General Motors
assembly lines

AI is not new...

1964 - First program developed to understand natural language

1965 - First chatbot named “Eliza” was invented

AI is not new...

1974 - The first autonomous vehicle was created at Stanford's AI lab

AI is not new...

**1989 - Carnegie Mellon creates
first autonomous vehicle using a
neural network**

AI is not new...

**1997 - IBM's Deep Blue beats
Gary Kasparov at chess**

AI is not new...

1999 - Sony introduces Aibo the
robotic pet

MIT's AI Lab demonstrates first
emotional AI

AI is not new...

2004 - Defense Advanced Research
Projects Agency introduces first
autonomous vehicle challenge

AI is not new...

2009 - Google starts building a self-driving car

2010 - Narrative Sciences AI demonstrates the ability to write reports

AI is not new...

**2011 - IBM Watson Beats
Jeopardy Champions**

**Siri, Google Now and Cortana
become mainstream**



AI is not new...

2015 - OpenAI receives one billion dollar donation

2016 - Google's DeepMind AlphaGo defeats Go champions

AI is not new...

2016 - Stanford issues the AI 100
Report

UC Berkley launches the Center for
Human Compatible Artificial Intelligence

AI is not new

The advances being made are increasing at an exponential pace

Leveraging computing power, communications infrastructure, and a plethora of digital data

Terms of Art

AI - Artificial Intelligence

GPT - Generative Pre-Training Transformer

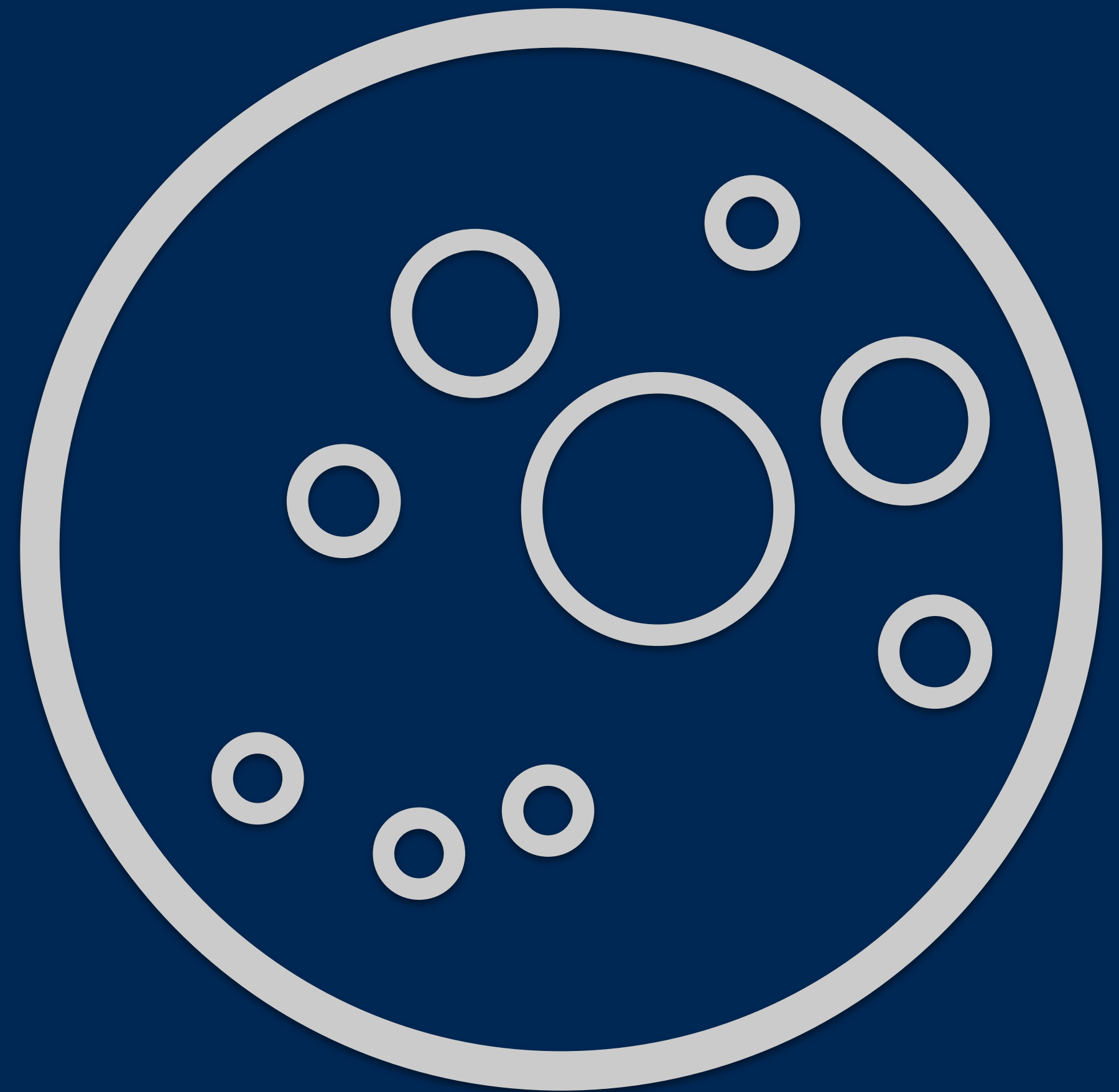
LLM - Large Language Model

Prompt - Refers to the input provided to the model to generate a response

Let me explain a bit about
ChatGPT using some
analogies...

Moonlight

The moon does not have light; it reflects light from the sun. Generative AI reflects things from humans collected on the web. How can students shine and demonstrate their knowledge if they only borrow moonlight?



Mirror

Generative AI is like a mirror, a cloudy mirror of the contents of the web. The web has lots of both good and bad data. Are students able to see 'themselves' through this mirror?



A brain without a mind

It's a brain without a mind.
It does not have a sensory system, it does not have consciousness, it doesn't have experiences or suffer from consequences



ChatGPT is excellent at language, but language is only one part of the definition of intelligence.

AI Courses at Clark

CSE 280 - Introduction to Machine Learning (since 2021)

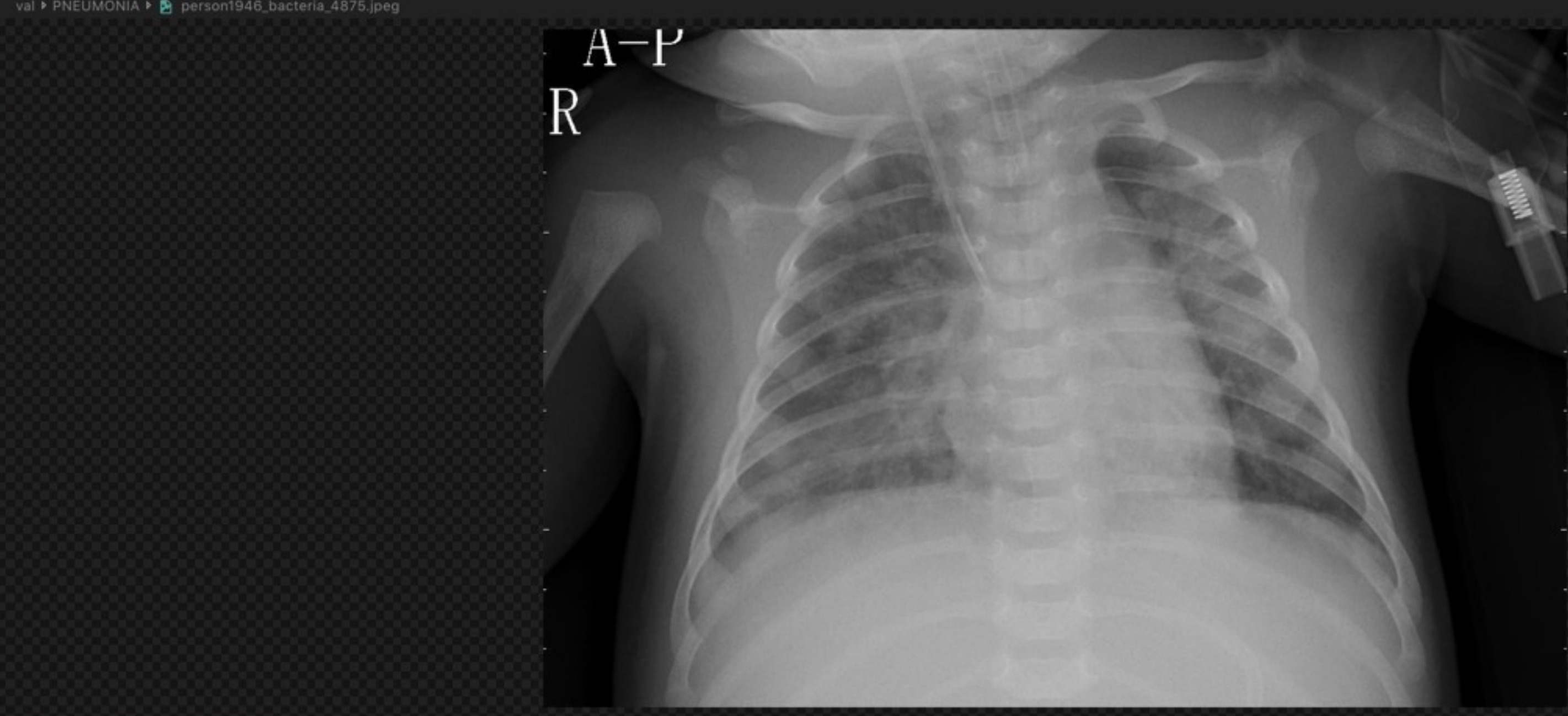
CTEC 270 - Emerging Technologies (since 2019)

EXPLORER

- OPEN EDITORS
 - xray-classifier.py
 - person1949_bacteria_4880.jpeg val/P...
 - test-image.py
 - person1946_bacteria_4875.jpeg val/PN...
- CHEST-XRAY
 - NORMAL2-IM-0381-0001.jpeg
 - PNEUMONIA
 - training_set
 - models
 - model_architecture.json
 - model_weights.h5
 - val
 - NORMAL
 - NORMAL2-IM-1427-0001.jpeg
 - NORMAL2-IM-1430-0001.jpeg
 - NORMAL2-IM-1431-0001.jpeg
 - NORMAL2-IM-1436-0001.jpeg
 - NORMAL2-IM-1437-0001.jpeg
 - NORMAL2-IM-1438-0001.jpeg
 - NORMAL2-IM-1440-0001.jpeg
 - NORMAL2-IM-1442-0001.jpeg
 - PNEUMONIA
 - person1946_bacteria_4874.jpeg
 - person1946_bacteria_4875.jpeg
 - person1947_bacteria_4876.jpeg
 - person1949_bacteria_4880.jpeg
 - person1950_bacteria_4881.jpeg
 - person1951_bacteria_4882.jpeg
 - person1952_bacteria_4883.jpeg
 - person1954_bacteria_4886.jpeg
- test-image.py
- xray-classifier.py

OUTLINE

The active editor cannot provide outline information.



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
1: Python Debug Console + - X
UTF-8 PYTHONUNBUFFERED=1 /usr/local/bin/python3 /Users/bruceelgort/.vscode/extensions/ms-python.python-2019.4.12954/pythonFiles/ptvsd_launcher.py --default --nodebug --client --host localhost --port 60221 "/Users/bruceelgort/Dropbox/Clark/CTEC280/Week 7/chest-xray/test-image.py"
Using TensorFlow backend.
WARNING:tensorflow:From /Library/Frameworks/Python.framework/Versions/3.7/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py:263: colocate_with (from tensorflow.python.framework.ops) is deprecated and will be removed in a future version.
Instructions for updating:
Colocations handled automatically by placer.
2019-05-27 07:19:16.271114: I tensorflow/core/platform/cpu_feature_guard.cc:141] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2 FMA
Found 5216 images belonging to 2 classes.
This patient has Pneumonia with a confidence of 1.0
(base) Bruce@iMac2:chest_xray bruceelgort$
```

```
print('==== RESTART: /Users/bruceelgort/Dropbox/bluemix/spee...')
+ IBM Watson analyzing audio file(s)...
("IBM Wats Watson transcribed the audio into:
watson_de "hi Bruce this is Gail can you please bring home some milk "
ersion='20 IBM Watson is now analyzing the text from the audio file...
ername='b Analyzed text
password='P {
e = nlu. "sentiment": {
=conver "document": {
ures=[f "score": 0.721086,
analyzed "label": "positive"
n.dump },
},
"relations": [
{
"type": "locat
"flabe": "locat
```

*How we work:
The impact of artificial
intelligence in the
21st century*

BRUCE ELGORT
Technology Instructor,
Clark College

#VANTALKS



Question BOT: Intro to Program x Ask the Question BOT: Intro to x +

clarkcollege.instructure.com/courses/2178880/pages/ask-the-question-bot

Account Dashboard Courses Calendar Inbox History Search Commons Help

CTEC 121 > Pages > Ask the Question BOT

Search... Student View

Winter 2022 View All Pages Published Edit

Ask the Question BOT

This application is currently in beta testing. To learn more about it please contact [Bruce Elgort](#) in the Computer Technology Department.

The Question BOT can help you get questions that you may have about this course answered.

Enter your question

Get the Answer

What Time Does Class Meet?

This class meets on Tuesday and Thursday from 10:30 AM - 12:50 PM on Zoom. Here's the [Link](#)

Home Question BOT Announcements Zoom Room (for Remote Section) Schedule Meeting with Bruce Grades Modules Search Student Services Syllabus Panopto Recordings Search Discussions People Outcomes Files

Group Assignment in CTEC 121 Intro to Programming and Problem Solving

Question 1

What ethical concerns should Clark College consider when incorporating GitHub Copilot and other AI tools into coding classes, particularly concerning academic integrity?

Question 2

How can Clark College ensure that GitHub Copilot and other AI tools used in coding classes are designed and implemented to promote academic integrity and not compromise the authenticity of student work?

Question 3

What strategies can Clark College use to help students understand the role of GitHub Copilot and other AI tools in coding and how to use them ethically while maintaining academic integrity?

Question 4

What other technological advances in human history have created an inflection point that impacts not just human behavior, ethics, and personal choices but later becomes the accepted standard for life in the future?

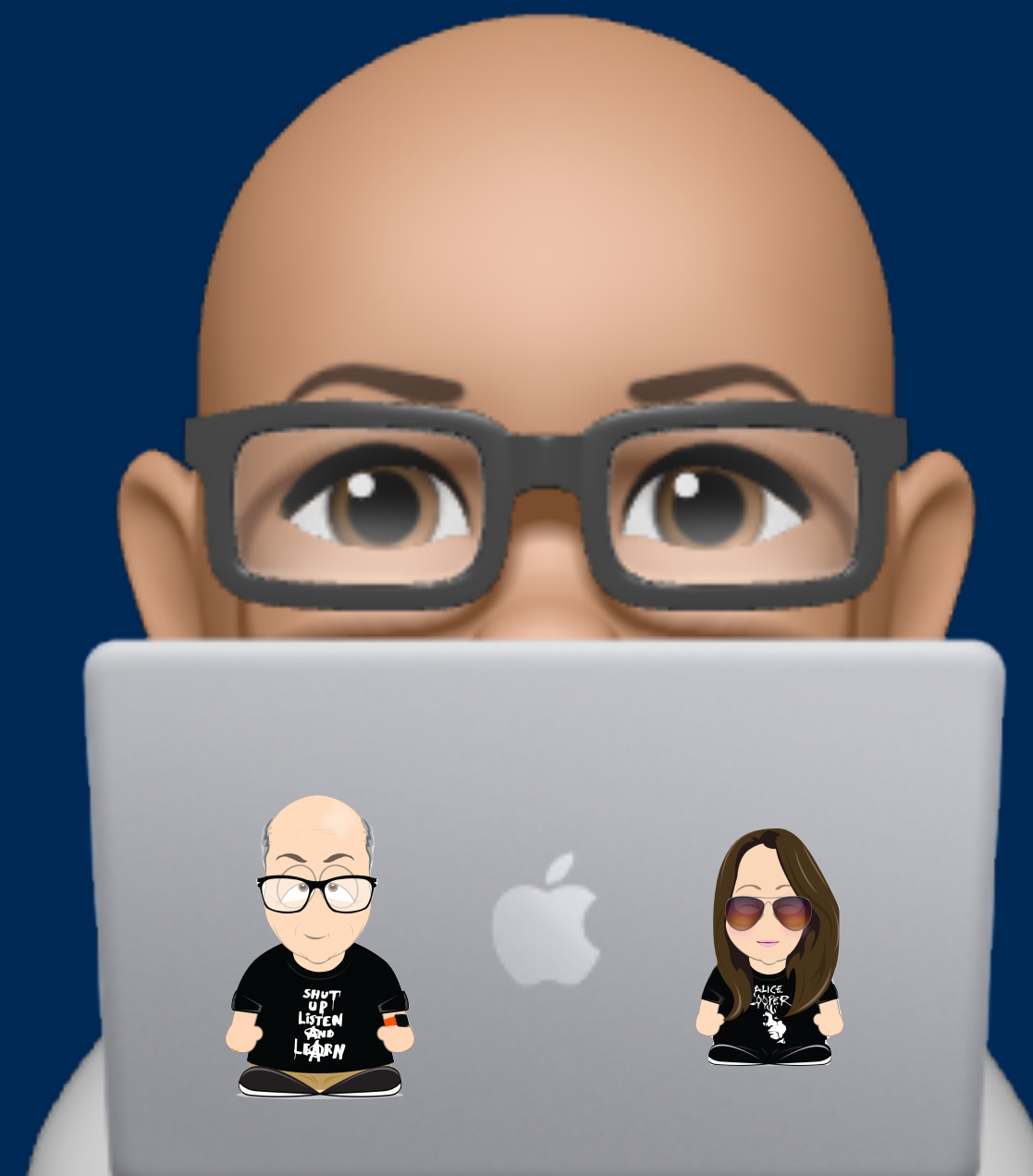
Question 5

Will code become increasingly homogenous if everyone used GitHub Copilot or similar AI tools? What happens to creativity?

Will code become increasingly homogenous if everyone used GitHub Copilot or similar AI tools? What happens to creativity?

Demonstration

How students are using AI in CTEC 121
Intro to Programming and Problem
Solving



Clark faculty and staff shared their experiences with AI

June 1, 2023: Adjunct Faculty Conversation – Discussing AI and Learning in the College Classroom (70+ attendees)

September 19, 2023: AI and Learning in the Classroom – Continuing to Explore Artificial Intelligence's Role in our Teaching and Learning (90+ attendees)

Thoughts about AI from around the college

“I am okay with students using AI to proofread and even to help construct statements/narratives. If there is a tool that will help you to convey your ideas well, I encourage you to use it if you would like. You will do a lot of reflection in this class and the ideas and concepts you share should be yours alone. Because this class is about you and your wellness, applications to and examples from your own life should be provided by you, not generated by a computer. If you are engaging in reflection on your own experiences and using AI as a tool to help you express those ideas, you will be doing the thinking and AI can help you with the composition of your thoughts. That is acceptable and still allows learning to occur. Please be cautious of your use of AI and ensure that you are promoting your own growth and development.”

Thoughts about AI from around the college

“I don’t have anything in my syllabi, but I do have an assignment where the students have to use ChatGPT which includes how to add the reference when they have used it.”

Thoughts about AI from around the college

*“No AI-specific info added to syllabi in our
departments classes.”*

Thoughts about AI from around the college

“As our division does not currently have AI-specific information that we ask/tell all of our instructors to put in their syllabi. I’m not sure if individual instructors within our division/department have put that sort of information in their individual syllabi.”

Thoughts about AI from around the college

“I expect that all work students submit for this course will be their own. In instances when collaborative work is assigned, the assignment should list all team members who participated. The use of ChatGPT, Google Bard, or any other generative artificial intelligence (AI) tools at all stages of the work process, including preliminary ones such as creating drafts, generating ideas, etc., are not allowed. Violations of this policy will be considered academic dishonesty. Note that different classes at Clark could implement different AI policies, and it is your responsibility to understand the expectations for each course.”

Thoughts about AI from around the college

“I’m teaching DMA 101: Photoshop this quarter (2 classes). I had the class explore Generative AI in our very first class. (There’s no escaping it in Photoshop – as it’s a constant bar that floats over the workspace that you have to turn off on each use – unless you want it “floating” there.)”

Thoughts about AI from around the college

“For our second assignment we give students a number of photographs that they will color correct, or clean-up the imagery (i.e., remove imperfections, etc.). There are a couple of photos where students are asked to fill in imagery using (a combination of) the healing brush tool, content aware patch, and clone stamp. These are all tools that still exist. However, a lot can now be done with a simple lasso tool and using the Contextual AI tool to remove or clone the imagery.”

Challenges for Higher Education

We were not prepared for AI. We reacted.
And here I am in front of the Board of
Trustees talking about it. 😊

Generative AI technology is moving faster
than higher ed can respond through
policies.

An opportunity to rethink about how we do assessment.

What matters in learning is not the destination, but the journey. We use proxies to assess whether or not someone has learned (quizzes, tests, etc.). AI and plagiarism short-circuit this learning journey.

AI is here to stay within society.

Create innovative ways to make the best of the tools that we now have.

Understanding that the goal of AI creators is to make them even more human-like.

It's now an opportunity for us to re-think what it is we are teaching our students. A society where ChatGPT works.

Dare I say, let's rethink the learning outcomes. We don't want to outsource them to Generative AI now do we?

And lastly...

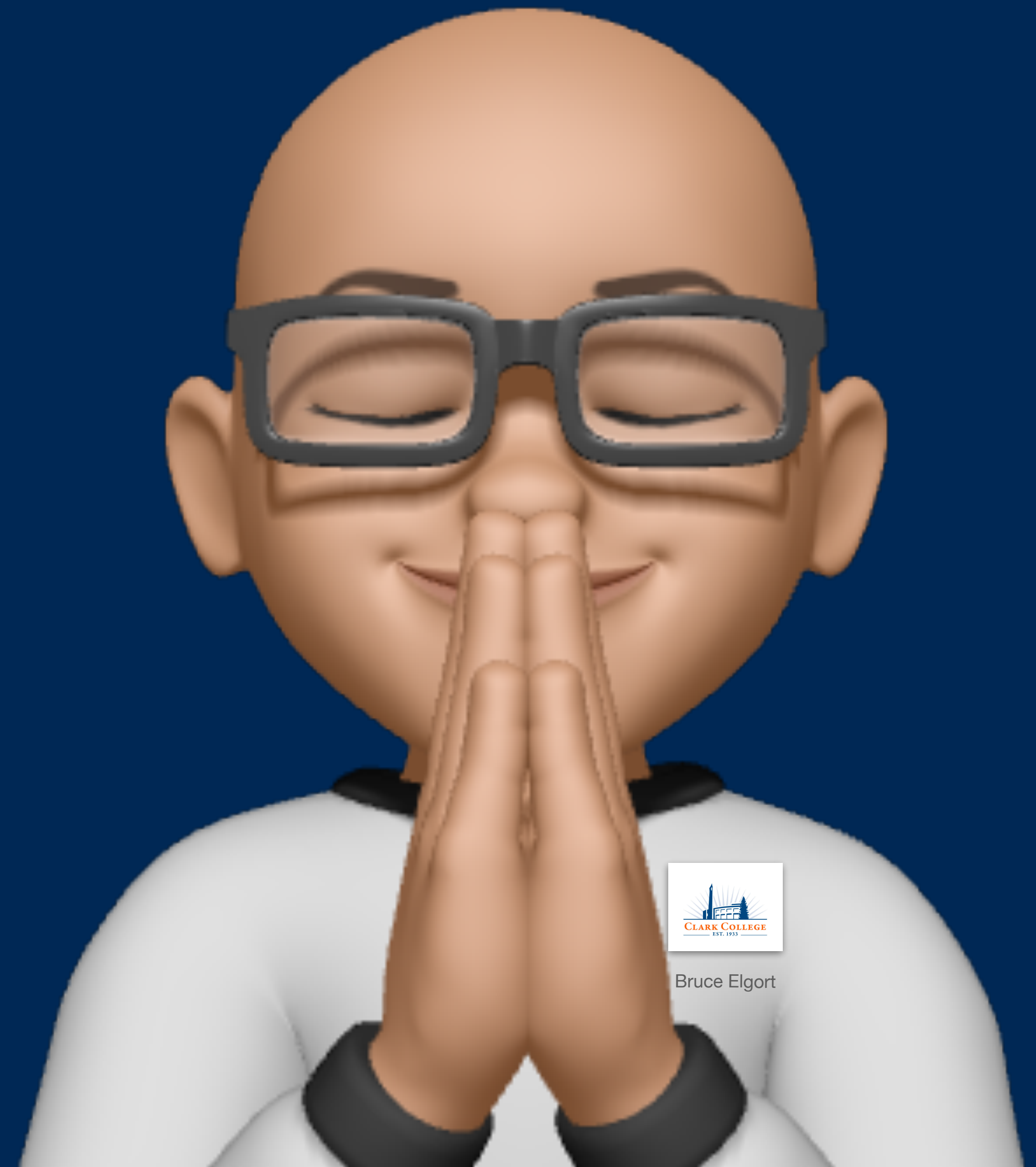
Critical thinking and being taught how to think critically is now more important than ever.

 Questions

 Feedback

 Answers

Thank you



Bruce Elgort