FOOTHILL-DE ANZA
Community College District

AI in Higher Education: An End-User Guidebook for Employees at Foothill-De Anza

(Version 1.0)

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1. Introduction to AI in Higher Education

What is AI?
Generative AI is a type of artificial intelligence that creates new content, such as text, images, music, or videos, by learning from large datasets. Unlike traditional AI, which focuses on analyzing data to make decisions, generative AI produces original, realistic content based on what it has learned.

Generative AI typically uses models like Generative Adversarial Networks (GANs) and Large Language Models (LLMs). These models are trained on extensive datasets, learning the patterns and structures within the data. For instance, an AI trained on numerous books can generate coherent and human-like text.

Popular LLMs:

ChatGPT (by OpenAI)

- **How It Works**: Utilizes transformer architecture to generate human-like text.
- **Strengths**: Versatile, used for writing, coding, and more.
- **Limitations**: Requires significant computational power, free version less robust than a paid subscription.

Gemini (by Google DeepMind)

- **How It Works:** Combines the strengths of language models with advanced reinforcement learning techniques.
- **Strengths:** Robust in multitasking and handling complex problem-solving.
- **Limitations:** Still under development and refinement for broader applications.

Claude (by Anthropic)

- **How It Works:** Focuses on safety and interpretability, leveraging transformer models to generate text.
- **Strengths:** Prioritizes ethical AI usage, designed to minimize harmful outputs. Generates kinder text (according to some users).
- **Limitations:** May have constraints in versatility compared to other models focusing solely on performance.

Copilot (by Microsoft)

- **How It Works:** Integrates with productivity tools like Microsoft Office to assist with tasks such as writing, coding, and data analysis.
- **Strengths:** Enhances productivity by providing real-time suggestions and automating repetitive tasks. Can use ChatGPT-4 in Creative mode with Copilot.
- **Limitations:** Primarily functions within the Microsoft ecosystem, which might limit its usage outside those applications.
- More information about Copilot at FHDA

Perplexity

- **How It Works:** Utilizes transformer architecture with a focus on probabilistic reasoning to generate text.
- **Strengths:** Excels in answering factual questions with high accuracy and providing detailed explanations.
- **Limitations:** May struggle with generating creative or nuanced responses compared to other models.

Pi (by Inflection AI)

- **How It Works:** Developed to facilitate more empathetic and supportive conversational interactions.
- **Strengths:** Excels in providing emotional support and fostering engaging, natural conversations.
- **Limitations:** May not perform as well in technical or highly specific informational queries compared to other LLMs.

Overview of Similarities and Difference

Similarities

- All use advanced transformer architectures for natural language processing.
- Trained on large datasets to understand and generate humanlike text.
- Capable of various language-related tasks, such as translation, summarization, and question answering.

Differences

- **ChatGPT:** Best for extended text generation and diverse applications; currently requires a paid subscription.
- **Gemini:** Focuses on multitasking and complex problem-solving with reinforcement learning.
- **Claude:** Emphasizes safe and ethical AI generation, minimizing harmful outputs.
- **Copilot:** Designed to enhance productivity within Microsoft's tools, offering real-time suggestions and task automation.
- **Perplexity:** Strong in factual accuracy and detailed explanations but may fall short in creative or nuanced tasks.
- **Pi:** Prioritizes empathetic and supportive conversation, excels in emotional intelligence, but may lack technical proficiency.

Start Exploring

- **Try Out the Tools:** Check out the links above. You can also compare models.
- **Experiment with Simple Projects:** Try out small projects like generating text, analyzing sentiment, or automating repetitive tasks. You can explore creating rubrics and refining your course content.

- **Check Out Online Courses:** Enroll in online courses that provide hands-on experience and deeper understanding of generative AI.

Image and Video Generators

Image:

- Stable Diffusion — good for combining AI with images from other sources
- DALLE-E — incorporated into Bing and Bing image creator
- Midjourney — the best system in mid-2023- start with Discord, then purchase a monthly account ($8/month)
- Adobe Firefly — built into many Adobe products

Video:

- D-iD — for animating faces- available on Canva!
- Runway — v2 for converting text to video- free option available
- Synthesia — for generating avatar videos
- ElevenLabs — for voice cloning-free option available

2. Writing Effective Prompts

Here are tips on how to effectively ask generative AI prompts:

Be clear, specific, and include details: Clearly state your request and provide specific details about what you want from the response. For example, instead of asking "Tell me about history," ask "Can you provide a brief overview of the major events of World War II?" Also consider giving the tool an “identity,” e.g., open your prompt with "You are a helpful AI assistant" or "You are a community college professor of _____ developing new curriculum for a course.”

Use open-ended questions: Avoid questions that can be answered with simple "yes" or "no" responses. Instead, use open-ended questions that require more detailed and thoughtful responses. For example, instead of asking "Is climate change real?" ask "What are the main causes and effects of climate change, and how is it impacting the environment?"

Set the context: Provide relevant context or background information to guide generative AI in generating a response. This can help ensure that the response is tailored to your specific needs. For example, instead of asking "What are the pros and cons of renewable energy?" ask "Can you provide a comparison of the advantages and disadvantages of solar and wind energy as sources of renewable energy in the context of environmental sustainability?"

Specify the format: If you have a preference for the format of the response, such as a summary, an outline, or a step-by-step guide, make sure to specify it in your prompt. For example, "Can you create an outline of the main points to include in a research paper on the topic of biodiversity conservation?"

Provide examples or context. Also, consider telling generative AI what you do not want.

Specify the steps needed to complete the task

Instruct generative AI to think through the answer slowly

Review and revise: After receiving a response from generative AI review it for accuracy and relevance. If needed, you can revise and refine your prompt to get a more satisfactory response.

Remember that generative AI is a language model and not a human, so the responses generated may not always be perfect. It may be necessary to refine and hone the prompt, provide more detail, or even ask the tool how to improve the prompt. Additionally, it is important to critically evaluate the output and use it as a starting point for further research or discussion.

3. Day-to-Day AI Use Cases

Enhancing Teaching and Learning

Course Design

Use AI to suggest course content, policies, resources, and assessment methods based on the latest trends and student needs. (e.g., Coursera for Campus); Foothill College's Create an AI Policy Chatbot).

Personalized Learning

Systems that analyze student performance and adapt the learning path to fit individual needs. (e.g., Smart Sparrow).

Assessment and Grading

Create rubrics, design assessments, automate grading of assignments and exams, provide detailed feedback, and identify areas where students struggle. (e.g., ChatGPT, Conker, Gradescope).

AI Detection

Technology to detect AI-assisted writing (e.g. Turnitin). Caution: AI detectors aren't always accurate and can generate false positive.

Presentations & Captioning

Slide development
Creates slides by responding to prompts with an outline summarizing the slides and template options, then generates slides (e.g. Gamma, Slides, and SlidesAI).
Caution: these may require mitigation for accessibility.

Captioning
Use AI, including speech-to-text, to caption videos for course content, presentations, meeting recordings, and the like (e.g. Whisper AI).

Improving Administrative Efficiency

Scheduling
Automate meeting scheduling, classroom booking, and other calendar-related tasks (e.g., Clara).

Communication
Use chatbots to answer common student queries, send reminders, and provide information on demand (e.g., Intercom).

Data Analysis and Reporting
Analyze student data to identify trends, make predictions, and generate reports (e.g., IBM Watson Analytics).

Note taking and Transcription
AI can be used to take meeting notes and transcriptions (e.g., Otter).

Research and Publication

Literature Review
Automate the process of finding and summarizing relevant research papers (e.g., Iris.ai, Elicit).

Data Analysis
Use AI to process large datasets, identify patterns, and visualize results (e.g., MATLAB).

4. AI Best Practices: Questions to Consider

When evaluating the appropriateness of an AI tool or platform for adoption in your classroom and/or in your work at the college, please consider the following essential questions:

Educational Goals & Alignment

- ✓ Does the tool align with your educational or business objectives?
- ✓ How does it enhance teaching, learning, and/or administrative processes?

Data Privacy & Security

- ✓ Does the tool comply with relevant privacy laws (e.g., CCPA, FERPA, HIPPA)?
- ✓ Does it use secure authentication methods and offer options for anonymity where appropriate?
- ✓ Are its policies on data usage transparent?

Bias & Equity

- ✓ Are there processes in place to mitigate potential biases in the tool's algorithms?
- ✓ Can you verify equity in potential use and representation across diverse populations?

Cost & Sustainability

- ✓ Is the tool cost-effective, scalable, and sustainable?
- ✓ Does it avoid duplication of existing platforms?

User Experience & Training

- ✓ Can the tool be easily adopted by users, yourself included?
- ✓ Is there a plan for user training and ongoing support?

Accessibility & Access

- ✓ Does the tool meet all ADA, WCAG 2.2, and Section 508 standards for accessibility?
- ✓ Can it be accessed by all required users?

Ethics

- ✓ Does the tool adhere to current best practices for ethical standards of use? See, for example, Leon Furze's Teaching AI Ethics.

Also see the California Community Colleges Chancellor's Office *Human-Centered Principles for Adopting Generative AI.*

Related Resource: FHDA Artificial Intelligence Use & Adoption Considerations

Attribution: Portions of this guidebook were adapted from the Foothill College Canvas course "Generative Artificial Intelligence (AI)," developed and maintained by Sally Baldwin.

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