

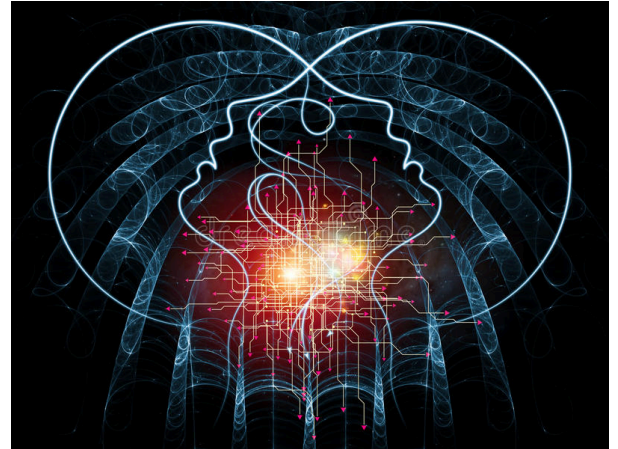
LMC 8803 GM1

AI 4 DM

Instructor: Brian Magerko
Office: MS Teams or in person by appointment
Email: magerko@gatech.edu
Contact hours: message on MS Teams 24/7 (note: responses are not 24/7) to chat asynchronously or to schedule an online or in-person meeting.

Class meetings: MW 9:30-10:45am Skiles 318

TA: Manoj Deshpande



This syllabus is a living document subject to change during the term.

Course Description

Artificial intelligence and machine learning have become increasingly prevalent in all walks of technology. This class will focus on surveying techniques and issues on incorporating Large Language Models (LLMs) and AI tools into individual student digital media projects. Course activities will be a mixture of demos / presentations on technical topics, discussion on theoretical and ethical issues related to AI and creativity, and individual open-ended programming assignments using off-the-shelf AI toolkits and libraries.

Videos from the instructor's previous studio projects can be found [here](#).

M.S. Learning Objectives

- Demonstrate the ability to analyze and critically evaluate existing digital media artifacts, services, and environments using formal knowledge, and to explain and defend one's critical evaluation.
- Demonstrate the ability to devise, design, create, and assess prototypical digital media artifacts, services, or environments and to contextualize them within recognized traditions of practice.
- Demonstrate use of digital media to create prototypes
- Demonstrate good time management skills
- Develop interactive media artifacts
- Can justify the design choices in their works

Ph.D. Learning Objectives

- Students can identify and analyze a domain within the field of digital media and identify areas for original contribution as well as methods to pursue these contributions.
- Apply theoretical concepts to specific digital media works
- Students can formulate and explore the answers to critical questions as related to AI and digital media
- Summarize and paraphrase key theoretical works

Attendance & Participation

Class attendance and participation is mandatory. Participation in class discussion is imperative because it allows you to explore the readings, computing concepts, and projects collaboratively, and in the process, discover meanings and issues that you probably would not discover on your own. Participation in class also challenges you to continuously question, refine, and articulate your own ideas and interpretations.

In addition, much of this class is based on critiques, which require full participation and cannot be replicated outside of class. Extensive teaching and learning occur through critiques: it is through critiques that you will develop your skills for both making and discussion of the made. Thus, your attendance and participation in critiques is an important and required aspect of this class.

*Absence from more than three classes will result in the loss of 1-letter grade for the course.
Tardiness for more than four classes will result in the loss of 1-letter grade for the course.*

Use of AI Tools in Writing & Programming

The use of AI tools for generating text for any written & programming assignment in this class is not only permitted, but encouraged (*with the exception of reading reflections*). However, any use needs to be well documented (including the name of the tool used & your prompts) and included as an appendix with the assignment.

Grading

If you complete all of the requirements for the assignment reasonably well, you should expect to earn a B. In order to earn an A, you must complete and go “above and beyond” all of the requirements and your work must be exceptional across multiple grading factors.

The grading distribution for the course will be as follows

H0: The Littlest AI Definition 0%

H1: 25%

- Milestone1: Teachable Machine + P5.js 10%
- Milestone2: Teachable Machine + ML5.js + P5.js 15%
- Milestone3: Flask App (Optional) 0%

H2: 25%

- Milestone1: Flask App: Hugging Face + OpenAI + P5.js 10%
- Milestone 2: Flask App: Hugging Face + OpenAI + LangChain + P5.js 15%

H3: 40%

- Milestone1: Choose a Method 5%
- Milestone2: Findings from the prelim study 10%
- Milestone3: Final project 25%

Participation in class & online discussion (Reading Reflections): 10%

Rubrics will be posted with each graded assignment.

Information for Students with Disabilities:

Please notify the instructor if you have any disabilities with which you need special assistance or consideration. The campus disability assistance program can be contacted through ADAPTS:

<http://www.adapts.gatech.edu>

Honor Code Statement

Students are expected to adhere to the Georgia Tech Honor Code: <http://honor.gatech.edu>.

Course Schedule

Day	Topic	Activity in class	Readings on Canvas	Assignment Due
8/19	Course Introduction	Syllabus review & discussion		
8/21	Understanding AI	presentation + discussion	Searle + You look like a thing and I love you ch 1	"The Littlest AI Definition"
8/26	Understanding ML/DL	discussion	The Master Algorithm Video + You look like a thing and I love you ch 2	
8/28		discussion	You look like a thing and I love you ch-3 + TensorFlow Playground.	
9/2	No Class - Labor Day			
9/4	Lab - Teachable Machine	Coding!	Bring your Laptops	H1 released

9/9	Anatomy of a Neural Network	discussion (class online)	Atlas of AI Crawford Video + Glassner Ch 14.	
9/11	CNN; Autoencoders and latent spaces	discussion (class online)	Glassner- Ch-16 CNN + Glassner- Ch-18 Autoencoder	
9/16	Lab - Using pre-trained models ML5.js	Coding!	Bring your Laptops	H1 M1 due on Canvas
9/18	Word Vectors & RNN (Temporal data)	discussion	Vectorized Word Video + Glassner - Ch-19 RNN	
9/23	Transformers, GPT, ChatGPT	discussion	Intro to LLM Video + Glassner - Ch-20 Transformers	
9/25	Lab - Flask Web App	Coding! (class online)	Bring your Laptops	
9/30	Lab - Hugging Face & OpenAI API	Coding! (class online)	Bring your Laptops	H1 M2 due on Canvas H1 M3 due on Canvas (optional) H2 released
10/2		H1 Project 4 min. presentations		
10/7	Prompting Techniques	discussion	Why Johnny Can't Prompt + Is It AI or Is It Me?	
10/9		discussion	Prompt Techniques Systemic Survey + Prompt Engineering Videos	
10/14	No Class - Fall Break			
10/16	project work day			
10/21	Lab - LangChain	Coding! (class online)	Bring your Laptops	H2 M1 due on Canvas
10/23	Methods		Wizard of Oz Design Fiction Co-Design Workshop	
10/28	Methods		Contextual Inquiry Research through Design (RtD) Interviews + Scenario-Based Design	
10/30	project work day			H3 released
11/4		H2 Project		H2 M2 due on

		4 min. presentations		Canvas
11/6	GAN		Glassner- Ch- 22 GAN + Models all the way down	H3 M1 due
11/11	Diffusion models	discussion	Foster- Ch-13 Multimodal Model + Weapons of Math Destruction Video	
11/13	AI Ethics	discussion	Mulching Proposal + Stochastic Parrots	
11/18	Ethics of generative AI	discussion	AI Isn't Artificial or Intelligent + Ethical Challenges and Solutions of Generative AI	
11/20		applied methods results discussion		H3 M2 due
11/25	No Class - Mental Health Day			
11/27	No Class - Thanksgiving Break			
12/2	Wrap-up discussion			
12/11	Final 8:00am - 10:50am: H3 M3 due + presentation - TEAMS CALL LINK			
Lagniappe	Computational creativity	discussion	Creativity and artificial intelligence, The Lovelace effect: Perceptions of creativity in machines	
	Autonomy	discussion	Autonomy, Authenticity, Authorship and Intention in computer generated art McCormack et al. (on Canvas)	
	Affordances of Latent Spaces	discussion	Latent Spaces: A Creative Approach	
	Creativity in text2img systems	lecture & discussion	Design Guidelines for Prompt Engineering Text-to-Image Generative Models ; The Creativity of Text Generation	