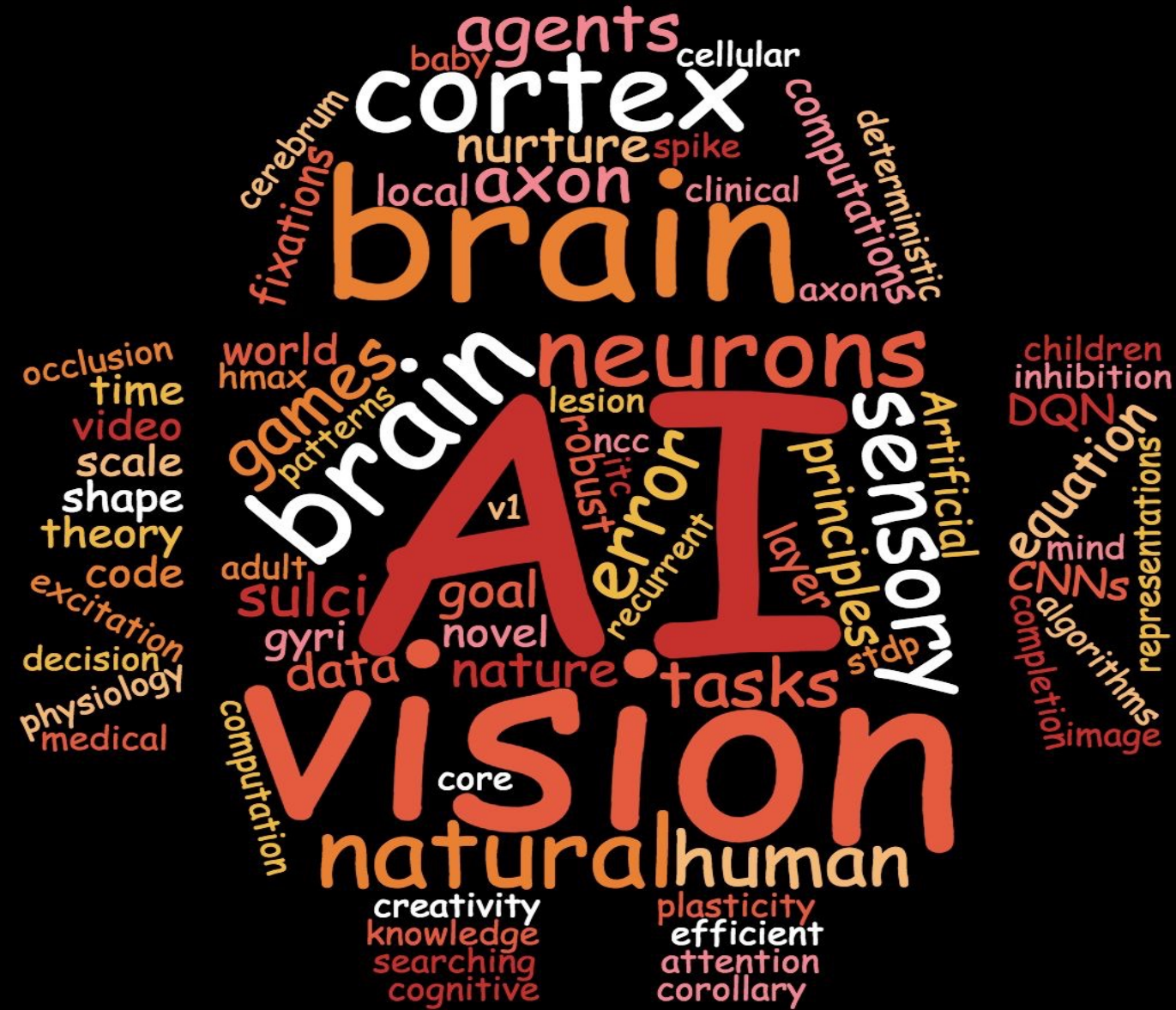# Welcome to Neuro 140/240!
Biological and Artificial Intelligence

Teaching assistants

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Web site(s)

https://canvas.harvard.edu/courses/130029

https://klab.tch.harvard.edu/academia/classes/BAI/bai.html

Seminar style class

01/23   Gabriel Kreiman   AI+CS+Neuroscience
01/30   Richard Born   Neuroscience
02/06   Gabriel Kreiman   Computational Neuroscience
02/13   Jan Drugowitsch   Computational Neroscience
02/20   Haim Sompolinsky Computational Neuroscience
02/27   Sam Gershman   Psychology
03/05   Tomer Ullman   Psychology
03/12   Spring break
03/19   Andrei Barbu   Computer Science
03/26   Thomas Serre   Computer Vision
04/02   Cengiz Pehlevan   Applied Math
04/09   Will Xiao   Computational Neuroscience
04/16   Gabriel Kreiman + others   Discussion

Project-based class

One project in the whole semester

Individual projects

Project must be separate from any undergraduate/graduate research you are conducting

All projects require coding

Use office hours!

https://klab.tch.harvard.edu/academia/classes/BAI/2024/Neuro140HomeworkProjects.pdf

https://klab.tch.harvard.edu/academia/classes/BAI/FAQ.html

Sample projects

1. Building models that can generalize

2. Can AI understand humor?

3. Parameters and overfitting in linear systems and neural networks

4. Visual illusions

5. Working memory

6. Turing test

7. Build your own project [Approval by TAs/Faculty required]

https://klab.tch.harvard.edu/academia/classes/BAI/2024/Neuro140HomeworkProjects.pdf

Pre-requisites

1. This is NOT a coding class

2. There will be tutorials on basic machine learning

3. Neuroscience background is not required

Tutorials

02/01/2024:   Tutorial 1: Basic tools. Pattern recognition with MNIST

02/08/2024:   Tutorial 2: Neural networks. Adversarial examples. Generative adversarial networks

03/01/2024:   Tutorial 3: Transfer learning . Image classification

03/08/2024:   Tutorial 4: More advanced topics and project-related questions

Grades

Due 02/06/2024:	Deliverable 1	5 points
Due 02/13/2024:	Deliverable 2	5 points
Due 03/05/2024:	Midterm report	15 points
Due 04/09/2024:	Deliverable 4	10 points
Due 04/23/2024:	Project presentation	5 points
Due 05/07/2024:	Final project report	50 points
Class participation:		10 points
Total:		100 points

Academic Integrity Policy

Discussion with other students and with people outside the class is encouraged throughout the course. Students can also utilize any relevant material from the library or the web. Students must adequately cite any material that they use.

Each student must work on his/her own project. No two projects can be identical. There can be no group projects. All work should be entirely the student's own work. The use of textbooks, books, articles, and web resources is encouraged.

The final write-up has to be exclusively the work of the student. If material is reported from other sources, it should be reported as a quote and cited. Projects involving code and algorithms can use existing code from public repositories. Any such code should be adequately cited. All code used in any models or simulations should be turned in accompanying the final report.

ChatGPT (or similar LLM)

You CAN use ChatGPT (or similar algorithms)

1. You have to cite it, provide the prompts and explain exactly what you did and when

2. You are responsible for all the content
   [E.g., if something is wrong, you cannot answer "it was not me, it was ChatGPT"]

Office Hours

Gabriel Kreiman
Tue 12–1pm. ZOOM By appointment

Morgan Talbot:
Thursdays, 6–7pm ET.
Location: Northwest 243

Yervand Azatian:
Tuesdays 5–6 PM.
Location: Northwest 243

140 versus 240?

140 = 240

Questions?

https://klab.tch.harvard.edu/academia/classes/BAI/FAQ.html