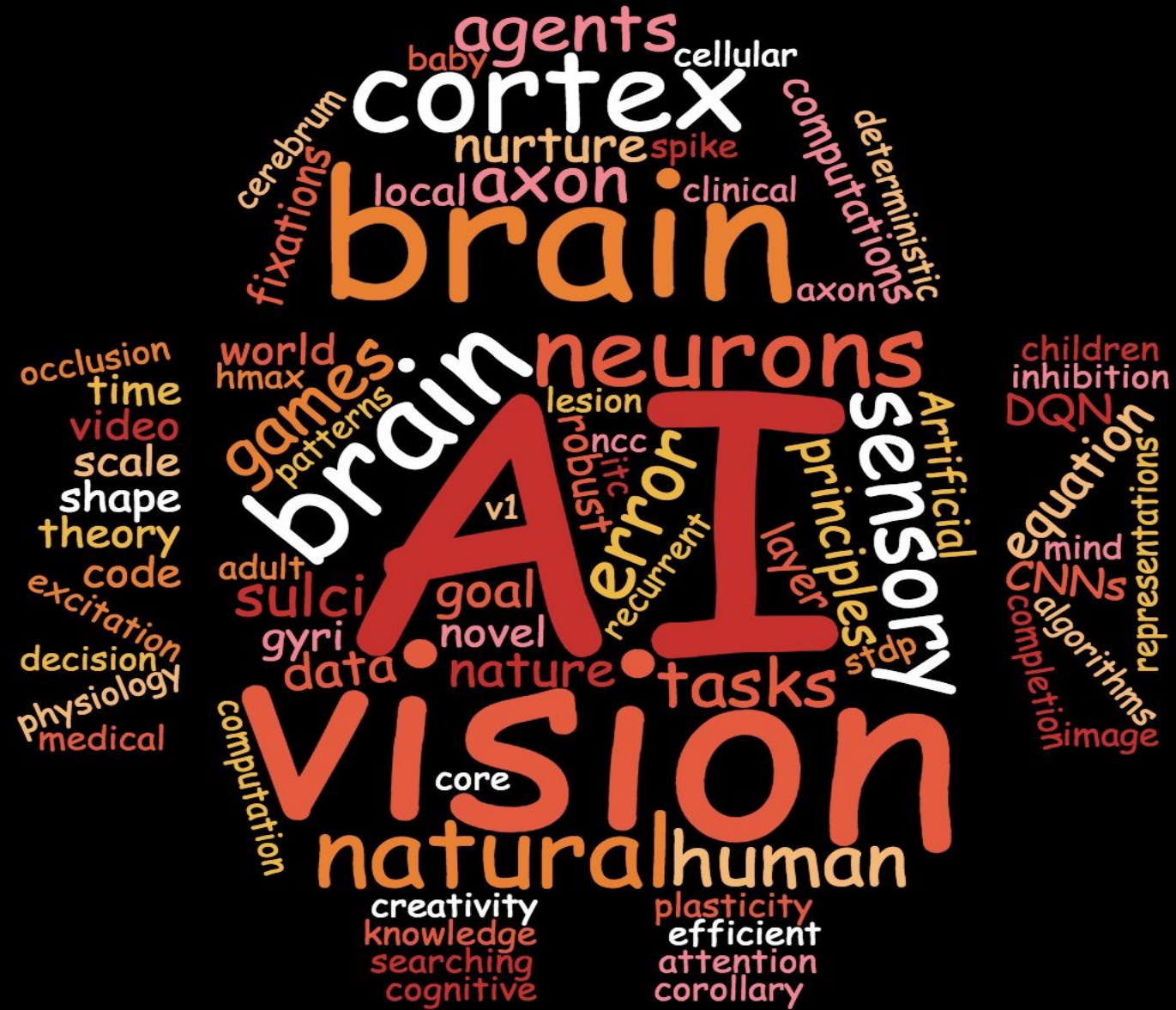


# Welcome to Neuro 140/240!

## Biological and Artificial Intelligence



# Teaching assistants



Dianna Hidalgo

diannahidalgo@g.harvard.edu



Anitej Thamma

Anitej\_thamma@g.harvard.edu



Valerio Pepe

valeriopepe@college.harvard.edu



Purab Seth

purabseth@college.harvard.edu

Web site(s)

<https://canvas.harvard.edu/courses/143051>

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

# Seminar style class

01/28/25	Gabriel Kreiman	AI+CS+Neuroscience
02/04/25	Richard Born	Neuroscience
02/11/25	Haim Sompolinsky	Computational Neuroscience
02/18/25	Thomas Serre	Computer Vision
02/25/25	Andrei Barbu	Computer Science
03/04/25	Tomer Ullman	Psychology
03/11/25	Isaac Kohane	Medicine
03/18/25	Spring break	
03/25/25	Cass Sunstein	Law
04/01/25	Kanaka Rajan	Cognitive Science
04/22/25	Cengiz Pehlevan	Applied Math
04/29/25	Gabriel Kreiman	AI+CS+Neuroscience
05/06/25	Student presentations	
05/13/25	Student presentations	

# 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!

Do not procrastinate, start early!

<https://klab.tch.harvard.edu/academia/classes/BAI/2025/Neuro140Projects2025.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. Humanity's last exam
6. Working memory
7. Turing test
8. Build your own project [Approval by TAs/Faculty required]

<https://klab.tch.harvard.edu/academia/classes/BAI/2025/Neuro140Projects2025.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

- 02/05/2025: Tutorial 1: Basic tools. Pattern recognition with MNIST [Valerio Pepe]
- 02/12/2025: Tutorial 2: Neural networks. Adversarial examples. Generative adversarial networks [Dianna Hidalgo]
- 02/26/2025: Tutorial 3: Transfer learning . Image classification [Anitej Thamma]
- 03/05/2025: Tutorial 4: More advanced topics and project-related questions [Purab Seth]



# Grades

Due 02/11/2025:	Deliverable 1	5 points
Due 02/18/2025:	Deliverable 2	5 points
Due 03/04/2025:	Midterm report	15 points
Due 03/25/2025:	Deliverable 4	10 points
Due 05/05/2025:	Project presentation	5 points
Due 05/13/2025:	Final project report	50 points
Class participation:		10 points
<b>Total:</b>		<b>100 points</b>

# 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 [see website for link]

Valerio Pepe

Wed 5–6:30pm, Dunster House Dinning Hall

Fridays 4–5pm , Zoom

Purab Seth

Sundays 1–2pm, TBD. Sundays 12–1pm, Zoom

Dianna Hidalgo

Tuesdays 5:30–7:30pm, TBD

Anitej Thama

TBD

# FAQ

- What is the difference between Neuro 140 and Neuro 240?

None

- I do not have machine learning experience, can I take the class?

Yes

- I do not have neuroscience experience, can I take the class?

Yes

- I do not know how to code, can I take the class?

We will NOT teach you how to code here

- Can I use the research that I am doing in a lab as a project for the class?

No. The work needs to be specific for the class.

- Can I work on the project with another student?

No. The projects are individual.

- Can I use LLMs?

Yes. See full policy in website.

- Can I eventually publish the results of my research project?

Yes!

Questions?