Neuro 140: Biological and Artificial Intelligence

Email sign-up

https://forms.gle/HAaE8ZmYHNXqg7AM7

Sign-up sheet

Please fill in this form with your name, email, concentration and year

https://forms.gle/HAaE8ZmYHNXqg7AM7

A multidisciplinary cadre of experts

Gabriel Kreiman

Computational Neuroscience

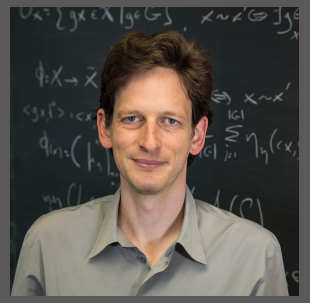
Haim Sompolinsky

Computational Neuroscience

Jan Drugowitsch

Computational Neuroscience

Tomer Ullman

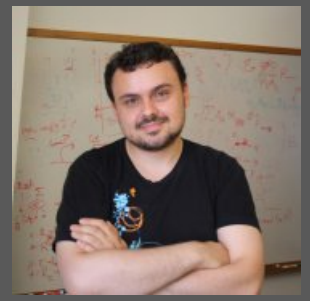


Psychology

Sam Gershman

Psychology

Andrei Barbu



Computer Science

Thomas Serre

Computer Science

Demba Ba

Electrical Engineering

Lucas Janson

Statistics

MacKenzie Mathis

Neuroscience

Cengiz Pehlevan

Applied Math

Aude Oliva

Computer Science

Lakshminarayanan Mahadevan

Neuro 140: TAs

Spandan Madan
spandan_madan@g.harvard.edu

Office Hours:
TBD

Colin Conwell
conwell@g.harvard.edu

Office Hours:
TBD

Neuro 140: Main faculty + Many lecturers

Gabriel Kreiman **– Office Hours**:

Before class: Tuesdays 2-3pm
https://harvard.zoom.us/j/94177327632

Neuro 140: Slack

slack

https://join.slack.com/t/teambai/shared_invite/zt-l2ppxuc7-G6k9jd_AZLjogvUrdQpuYA

Survey

Please fill in this 30-seconds anonymous background survey for us to learn more about your background
Link also available through class web site

https://forms.gle/wnPrzq8ihDyhmY446

Neuro 140: Biological and Artificial Intelligence

Logistics:

Class website

https://canvas.harvard.edu/courses/84784

(also at: http://klab.tch.harvard.edu/academia/classes/BAI/bai.html)

Location: https://harvard.zoom.us/j/95236038641

When: Tuesdays 3-5pm

Website includes: Slides, Suggested Reading, Videos (after class), link to other information

Grades

Homework 1 (Setup). 02/09/2021	5%
Homework 2 (Warmup). 02/23/2021	5%
Midterm report. 03/12/2021	20%
Homework 4 (Progress). 04/13/2021	5%
Final project report. 05/05/2021	65%

Extra credit: 1% per lecture for participating in Slack discussions

Extra credit: 5% video demos of final project

More details at: http://klab.tch.harvard.edu/academia/classes/BAI/Neuro140HomeworkProjects.pdf

Learning by doing: Projects

- All projects are computational. Basic programming skills are required: “hello world” and basic math
- You can use open-source codes. MUST properly cite resources. MUST Submit code in the final report.
- Different students can choose the SAME project topic. But each student must work on his/her OWN project
- Choose project early (ample time for preparation)
- 0 < Number of projects < 2
- Customize your own project: requires approval by TAs and Prof. Kreiman

Full list at http://klab.tch.harvard.edu/academia/classes/BAI/Neuro140_Projects_2021.pdf

Learning by doing: Projects

- Recognition of doodles
- Face recognition with Arduino
- Action recognition in controlled datasets
- The problem of overparametrization in linear systems and/or neural networks
- The role of color in visual recognition
- Size and Position invariance in visual recognition
- Continual Learning for image recognition or video games
- Create your own object recognition challenge

Many more …

Tutorial sessions

Date and time to be announced

Machine learning
Deep convolutional neural networks
Generative adversarial networks
GitHub, Google Collab, Tensorflow, Pytorch
…

We want you to participate

Please interrupt during the class, and
interact with faculty members
before/during/after classes!

Advice to get the most out of the course

1. Mute yourself unless you want to say something. You can use the raise hand feature to ask questions; if that does not work, unmute yourself and speak up.
2. We strongly encourage you to turn on your camera. Believe it or not, studies show that students pay more attention and learn more when their camera is on. If you have to turn it off momentarily that is fine, and you can turn it back on when you are back.
3. We strongly encourage you to turn off your phone, and close other applications in your computer. Again, studies show that students learn more when they are not multitasking.
4. The chat should be used to discuss class-related content.
5. Read the material before class
6. Participate in class