Week 8
Challenges
ECE 410/510
Spring 2025

Instructions

- The challenges below are for you to delve deeper into the subject matter and to test your own knowledge.
- I'd suggest you try to solve at least one problem per week. More is obviously better.
- Practice "vibe coding" if necessary.
- Post your solution(s) in the `#weekly-challenges` Slack channel so everybody can appreciate what you did, ask questions, and make comments.
- Document everything for your portfolio and make your code available on Github.

Challenge #24: Run a simulation on the EBRAINS BrainScaleS-2 neuromorphic hardware

EBRAINS (https://www.ebrains.eu) is an open research infrastructure that gathers data, tools and computing facilities for brain-related research. The project is funded by the EU and the Human Brain Project

Learning goals:
- Run a simple simulation on the EBRAINS BrainScaleS-2 hardware.
- Explore the capabilities of BrainScaleS-2 as well as PyNN (https://neuralensemble.org/PyNN)

Tasks:
1. Request a free account for the EBRAINS neuromorphic platform at https://wiki.ebrains.eu/bin/view/Collabs/neuromorphic/Getting%20access
2. Once you have an account and a collab, head over to the BrainScaleS-2 demo code and descriptions at https://electronicvisions.github.io/documentation-brainscales2/latest/brainscales2-demos/tutorial.html
3. Pick one of the examples/demos, e.g., matrix multiplication, and run it on the BrainScaleS-2 hardware: https://electronicvisions.github.io/documentation-brainscales2/latest/brainscales2-demos/tp_00-introduction.html
4. Enjoy the excitement ☺!