

EECE503P/798S Hackathon Announcement

“12 Hours to Build with Graphs”

Overview

This hackathon is dedicated entirely to **Graph Representation Learning**. Your challenge is to design and implement an **LLM-based** agent or system that **leverages graphs as a core modality for structuring, transforming, or enriching data**.

You will have 12 hours to conceptualize, build, and demo your solution.

Each team (max 3 students) must submit a public GitHub repository with reproducible instructions, Docker setup, and a short demo (video strongly recommended).

Why Graphs?

Graphs allow us to represent data in a way that captures relationships and structure across modalities (text, images, audio, etc.). This hackathon is not about Knowledge Graphs or Graph Neural Networks—it is about experimenting with how data can be *converted into* or *represented as* graphs, and then used creatively.

For inspiration, explore the open-source repo [Cognee](#), which provides examples of multimodal-to-graph transformations.

How to Compete

- Choose an application domain (see examples below or propose your own).
- Define the role of graphs in your pipeline (e.g., text-to-graph conversion, cross-modal graph fusion).
- Implement an agent or system that demonstrates this idea.
- Deliverables: simple chat UI + API + Docker + Git repo (with README, setup, deployment).
- One submission per team. The GitHub README must clearly list the names of all team participants.
- Deadline: 12 hours. Late commits (post 12 hours) will not be considered.
- You are assessed on what you **add of value**, not for what you borrow from open source.
- Above all, focus on the **use-case**: make your solution matter to someone.

Example Applications (Graphs Everywhere!)

- **Text-to-Graph Converter** – turn unstructured documents into graph structures.
- **Image-to-Graph Extractor** – capture objects/relationships in visual scenes as graphs.
- **Audio-to-Graph Pipeline** – map speech or sound events into temporal/spatial graphs.
- **Cross-Modality Graph Fusion** – unify different modalities into one graph representation.
- **Graph-Based Summarizer** – generate concise summaries by walking graph structures.
- **Educational Tutor** – structure course content or student notes as graphs for better reasoning.
- **Health/Wellness Companion** – use graphs to track habits, routines, or symptoms.

Team Format

- Up to 3 students per team.
- Smaller teams are graded equally.

Grading Criteria

- **Core Graph Use** – originality and relevance of graph representation.
- **Functionality** – feature completeness, robustness.
- **Creative Twist** – persona, novelty, consistency.
- **Technical Integration** – smooth LLM use, multimodal extension (bonus).
- **UI/UX & Presentation** – clarity, usability, polish.
- **Documentation & Code Quality** – README, comments, structure.

Submission

- Public GitHub repo (Docker + setup).
- README must include all team members' names.
- Strongly recommended: short recorded video demo.
- Submit via Moodle.

Final Words

This hackathon is about *pushing the boundaries of how we represent the world as graphs*. Experiment boldly, break things, and learn quickly. Surprise us with what you can build in 12 hours.