CS/QTM/LING 329: Computational Linguistics

Artificial Intelligence (AI) has advanced to the point that it starts interacting with humans in natural language. This communication ability makes AI an integral part of human society as a collaborator and companion. Thus, it is essential to understand how AI can (and should) be designed to conduct meaningful conversations with humans. The main objectives of this course are:

- To discover technical approaches to dialogue systems.
- To conceive manifold use cases of dialogue systems.
- To study effective ways of Human-Computer Interaction.
- To develop a dialogue system using methods in Computational Linguistics.
- To comprehend the limitations of your dialogue system through Statistical Analysis.

Students will have individual assignments and work in groups to build end-to-end dialogue systems of their choice. Toward the end of the semester, all teams will present the dialogue systems with live demonstrations.

Important Notice

For Spring 2023, CS/QTM/LING 329 is selected as a LINC (Learning through Inclusive Collaboration) course. Thus, it will include collaborative work with students taking **IDS 385W: Translation: Who, What, How**.

General

- Course webpage: https://github.com/emory-courses/conversationa-ai
- Class location: White Hall 112
- Class hours: MW 2:30pm - 3:45pm

Instructors

- Jinho Choi
  : Associate Professor of Computer Science
  : Office Hours → MW 4pm - 5:30pm, MSC W302F
- Talyn Fan
  : Research Engineer at the Emory NLP Research Lab
  : Office Hours → TBA
- Benjamin Ascoli
  : PhD in Computer Science and Informatics
  : Office Hours → TBA

Grading

- 1 + 7 topical quizzes: 55%
- 3 LINC exercises: 10%
- Project proposal: 15%
- Final project: 20%
- Your work is governed by the Emory Honor Code. Honor code violation (e.g., copies from any source including your colleagues and internet sites) will be referred to the Emory Honor Council.
- Excuses for exam absence/reschedule and other serious personal events (health, family, personal related, etc.) that affect course performance must be accompanied by a letter from the Office of Undergraduate Education.

Topical Quizzes

- One quiz will be assigned for every topic to check if you keep up with the materials.
- Quizzes must be submitted individually. Discussions are allowed; however, your work must be original.
- Late submissions within a week will be accepted with a grading penalty of 15%, and will not be accepted once the solutions are discussed in class.

LINC Exercises

- TBA.

Project Proposal

- You are expected to:
  - Group a team of 3-4 members.
  - Give a presentation to propose your idea about the final project.
  - Write a proposal that illustrates details about your proposed project.
- Everyone in each group will receive the same grade for the project proposal.

Final Project

- You are expected to:
  - Give a presentation about your final project.
  - Give a demonstration of your system.
  - Write a final report that illustrates details about your work.
- Everyone in each group will receive the same grade for the final project.

Schedule

Date	Topic	Resource	Assignment
01/11	Getting Started		Quiz 0
01/16	**MLK Holiday**		
01/18	Introduction		
01/23	(Continue)		Quiz 1
01/25	Regular Expressions		
01/30	(Continue)		Quiz 2
02/01	Dialogue Graph		
02/06	(Continue)		
02/08	(Continue)		Quiz 3
02/13	Interaction Design		
02/15	(Continue)		
02/20	(Continue)		Quiz 4
02/22	Project Proposals		
02/27	(Continue)		
03/01	(Continue)		

Date	Topic	Resource	Assignment
03/06	Spring Break		
03/08	Spring Break		
03/13	Context Understanding		
03/15	(Continue)		
03/20	(Continue)		Quiz 5
03/22	Multi-hop Inference		
03/27	(Continue)		
03/29	(Continue)		Quiz 6
04/03	Conversational Analysis		
04/05	(Continue)		
04/10	(Continue)		Quiz 7
04/12	Project Presentations		
04/17	(Continue)		
04/19	(Continue)		
04/24	Live Demonstrations		