

Code Large Language Models (CS 4/510)

Ref. No: 13610 and 13619

Fall 2026

Course Objective

- Large language models have many potential applications, not only to natural languages, but also to computer languages and software engineering. This course will focus on the application of large language models and coding agents to computer code, including code generation, repository understanding, planning, testing, verification, and software development. The course will cover topics ranging from the foundations of modern large language models to coding agents, agent architecture, context engineering, tool use, long-horizon reasoning, verification and feedback, evaluation, and harness engineering. This study will be carried out by reading and discussing recent papers from relevant conferences and journals.

Class Homepage

- <http://www.cs.pdx.edu/~xie/cllms-f26/cllms-f26.htm>

Instructor

- Prof. [Fei Xie](#)
Office: FAB 120-10
Homepage: <http://www.cs.pdx.edu/~xie>
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Office Hours

- By appointment

Prerequisites:

- None

Meeting Time and Location

- Friday 9AM-12:40PM, FAB 47

Textbooks

- There is no textbook for this class and papers will be provided for each class meeting.

Grading

- Paper Presentation and Class Participation: 50%
 - Each student is assigned to a team responsible for presenting two papers on a specific topic in a given week and must participate in preparing and delivering the presentations.
 - Every student is required to attend each meeting and participate in paper discussions.
- Paper reviews: 50%
 - Every student is required to submit 2-page review for every paper being discussed each week, except the papers they are presenting. A review is required to include:
 - Summary of the paper
 - Strength and Weakness of the paper/approach

- Open problems from the paper

Class Schedules

	Dates	Topics	Notes
Week 1	Oct. 2	From LLMs to Coding Agents	
Week 2	Oct. 9	Agent Architecture	
Week 3	Oct. 16	Repository Understanding	
Week 4	Oct. 23	Context Engineering	
Week 5	Oct. 30	Tools & Action Spaces	
Week 6	Nov. 6	Planning, Search & Long-Horizon Work	
Week 7	Nov. 13	Verification & Feedback	
Week 8	Nov. 20	Benchmark and Evaluation	
Week 9	Nov. 27	(Thanksgiving; No Class)	
Week 10	Dec. 4	Harness Engineering	

(This schedule is subject to changes according to the need of the class. For the readings of each class meeting, please see the reading list.)

Academic Integrity

- Academic misconducts will be handled according to the rules of the Department of Computer Science, Maseeh College of Engineering and Computer Science, and Portland State University.