LECTURE 7

GEOSPATIAL AI AGENTS AND DYNAMIC PROMPTING

Geospatial Representation Learning

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Learning Outcomes

Lecture

- Explain the basic components of geospatial AI agents, including prompts, tools, memory, planning, execution, and evaluation.
- Describe dynamic prompting as a strategy for adapting agent behavior to geospatial tasks, data sources, and user goals.
- Compare manual geospatial analysis workflows with agent-assisted workflows.
- Identify geospatial use cases for AI agents, including data discovery, data preprocessing, exploratory analysis, mapping, retrieval, literature analysis, and decision support.
- Explain how tools such as OpenClaw and Codex can support geospatial workflow automation and software development.
- Evaluate agent outputs with respect to correctness, reproducibility, transparency, uncertainty, robustness, and cost.

Lab

- Design a simple agent-assisted workflow for a geospatial analysis question.
- Connect an AI agent or scripted assistant to selected geospatial data tools or APIs.
- Evaluate the agent's outputs against a manually implemented baseline.
- Present limitations, failure cases, and possible improvements of the prototype workflow.

PRACTICAL 7

PROTOTYPE GEOSPATIAL AI AGENT

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