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UNIVERSITY OF SOUTH CAROLINA

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CSCE 580: Introduction to AI

Lecture 15: Project Presentation – Sprint 1

PROF. BIPLAV SRIVASTAVA, AI INSTITUTE

8TH OCT 2024

Carolinian Creed: "I will practice personal and academic integrity."

Credits: **Copyrights of all material reused acknowledged**

Organization of Lecture 15

- Introduction Segment
  - Recap of Lecture 14
- Main Segment
  - Student Presentations
- Concluding Segment
  - Course Project Discussion
  - About Next Lecture – Lecture 16
  - Ask me anything

Introduction Section

Recap of Lecture 14

- Topics discussed
  - Understood Clustering problem
  - Understood k-means
  - A range of clustering methods
  - Measuring cluster quality
  - Explaining clusters
  - Working with Weka, scikit and python code samples

Where We Are in the Course

CSCE 580/ 581 – In This Course

- Week 1: Introduction, Aim: Chatbot / Intelligence Agent
- Weeks 2-3: Data: Formats, Representation and the Trust Problem
- Week 4-5: Search, Heuristics - Decision Making
- Week 6: Constraints, Optimization – Decision Making
- Week 7: Classical Machine Learning – Decision Making, Explanation
- Week 8: Machine Learning – Classification, Clustering
- Week 9: Machine Learning - Classification – Trust Issues and Mitigation Methods
- Topic 10: Learning neural network, deep learning, Adversarial attacks
- Week 11: Large Language Models – Representation, Issues
- Topic 12: Markov Decision Processes, Hidden Markov models - Decision making
- Topic 13: Planning, Reinforcement Learning – Sequential decision making
- Week 14: AI for Real World: Tools, Emerging Standards and Laws; Safe AI/ Chatbots

Main Section

Credit: Retrieved from internet

Course Project

Discussion: Projects

- New: two projects
  - Project 1: model assignment
  - Project 2: single problem/ llm based solving / fine-tuning/ presenting result

Project Discussion

1. Go to Google spreadsheet against your name
2. Enter model assignment name and link from (http://modelai.gettysburg.edu/)

1. Create a private Github repository called "CSCE58x-Fall2024-<studentname>-Repo". Share with Instructor (biplav-s) and TA (vishalpallagani)
2. Create Google folder called "CSCE58x-Fall2024-<studentname>-SharedInfo". Share with Instructor (prof.biplav@gmail.com) and TA (vishal.pallagani@gmail.com)
3. Create a Google doc in your Google repo called "Project Plan" and have the following by next class (Sep 5, 2024)

Timeline
1. Title:
2. Key idea: (2-3 lines)
3. Data need:
4. Methods:
5. Evaluation:
6. Milestones
    1. // Create your own
7. Oct 3, 2024

Reference: Project 1 Rubric (30% of Course)

Assume total for Project-1 as 100

- **Project results** – 60%
  - Working system ? – 30%
  - Evaluation with results superior to baseline? – 20%
  - Went through project tasks completely ? – 10%
- **Project effort**s – 40%
  - Project report – 20%
  - Project presentation (updates, final) – 20%
- **Bonus**
  - Challenge level of problem – 10%
  - Instructor discretion – 10%
- **Penalty**
  - Lack of timeliness as per your milestones policy (right) - up to 30%

Milestones and **Penalties**

- Project plan due by Sep 5, 2024 **[-10%]**
- Project deliverables due by Oct 3, 2024 **[-10%]**
- Project presentation on Oct 8, 2024 **[-10%]**

Report Format

1. Title:
2. Key idea: (2-3 lines)
3. Data need:
4. Methods:
5. Screen shot (as applicable)
6. Evaluation:
7. Experience: *what learnt, anything special to discuss with class*

Presentation Format

2 minute video

Screen Shot

1. Title:
2. Key idea: 1 line summary
3. Data need:
4. Effort and Result
    1. What was done (scope)
    2. What was not done (decided not to, couldn't)
    3. Result

Experience

Lecture 15: Summary

- Good range of projects
- Gear up for Project 2

Concluding Section

About Next Lecture – Lecture 16

Lecture 16: ML– Neural Networks, DL

- Neural Networks – NN
- Deep Learning - DL

13	Oct 1 (Tu)	Machine Learning – Classification – Decision Trees, Random Forest, NBC, Gradient Boosting, ML-Text
14	Oct 3 (Th)	ML – Unsupervised / Clustering
15	Oct 8 (Tu)	Student presentations - project
16	Oct 10 (Th)	ML – NN, Deep Learning
17	Oct 15 (Tu)	Processing Natural Languages/ Language Models
	Oct 17 (Th)	
18	Oct 22 (Tu)	Large Language Models (LLMs) / Foundation Models
19	Oct 24 (Th)	Using LLMs – how and when ?