

Artificial Intelligence and Machine Learning - Course Study Sheet

Course: Artificial Intelligence and Machine Learning Cluster: Computing and Data

Studies search, representation, supervised and unsupervised learning, neural methods, evaluation, and responsible use.

Five-module course map

Module	Active evidence to produce
1. search and optimization	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
2. feature and representation choices	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
3. supervised learning	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
4. unsupervised learning	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
5. evaluation and responsible AI	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.

Reliable learning method

define task and metric, create a baseline, separate training from evaluation, analyze errors, test robustness, and document use limits

Representative application

Compare a simple baseline and a complex classifier, then explain when the added complexity is not justified.

Weekly study cycle

1. Preview the objective and write two questions. 2. Attend or engage and capture decisions rather than every sentence. 3. Reconstruct the main idea within 24 hours. 4. Complete independent practice. 5. Analyze the first unsupported move on each error. 6. Use feedback. 7. Schedule a delayed mixed recheck.

Self-check before moving on

Can you explain the idea without notes, complete a fresh task, detect a near-miss, verify the result, and state a limitation? Watch especially for: tuning on the test set, confusing correlation with intelligence, or hiding uncertainty and subgroup performance.

What to save

a model experiment with baseline, protocol, results, error analysis, risk review, and model card

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