



SOUTHASIA INSTITUTE FOR HISTORY AND PHILOSOPHY

A COURSE ON NEW HUMANITIES

Human and Machine Reasoning

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Course Objectives

The aim of this course is to introduce different systems of reasoning—from syllogistic frameworks and experience-rooted logic to modern computational models—so as to enable students to examine the structure of arguments, translate intuitive reasoning into formal representations and understand decision-making in both human and algorithmic contexts.

Total Duration: 5 sessions (10 hours)

Mode: Lectures, demonstrations and collaborative discussions

Human Reasoning

Class 1 Reasoning and truth I: Logic, propositions and non-propositions, categorical syllogism, three-membered inference, major and minor premises, conclusion, generalisations, inferential systems, sound and valid inference

Class 2 Reasoning and truth II: Nyāya's five-membered inference structure, observational basis, avoiding arriving at erroneous conclusions, use of inference in debate or dialog; Lived experience and non-linear Reasoning: Proverbs as logic, analogical reasoning, adaptive reasoning

Machine Reasoning

Class 3 Binary thinking in humans and machines: Binaries in everyday situations; Binary outcomes in social media platforms; Engagement: like and dislike, follow and unfollow, content moderation: posts moderation (flagged and not-flagged), feeds (for you and followers); Binary thinking in machines (classification problem)

Class 4 Beyond binary thinking: Admitting uncertainty, handling both and neither categories, confidence thresholds (scores); Implications of ambiguous systems: Medical and legal AI, Social media engagement metrics and content moderation, Uncertainty and trust in machines (algorithms)

Inference Structures in LLM (ChatGPT) Prompts

Class 5 Prompts as logical structures: Crafting large language model prompts: Premise-conclusion prompts, Analogical prompts, Example-based prompts, Debate-style prompts; Clarity and quality of responses; Prompt engineering

Assessment: Participation, engagement, inputs and reception; Group discussions

Assignment: Short readings and collaborative models

Auditing: Observational feedbacks and peer-discussions