

## MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

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### SUPERVISOR'S INFO

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### PROJECT ID: PS2510-05

### TITLE

Foundations of Large Language Models and their Ethical Implications

### BRIEF DESCRIPTION OF PROJECT

Large Language Models are the technology behind ChatGPT and Deepseek. These provide state of the art performance behind many text prediction models. Surprisingly, these seem to provide seemingly sensible answers to practically any prompt we can think of. But do these models consciously know what it provides as an output? Should we be cautious? What are the possible implications of relying on these models beyond the premises they were originally designed for?

### EXPECTATION/S

Students are expected to have a good understanding of the algorithmic and mathematical underpinnings behind Large Language Models, as well as the other language models that preceded current transformer models. Students are expected to understand how these models are used in a new domain where questions may arise about their use, and as a mathematician, provide a firm analysis (or critique) if these applications are sound. A prime example would be in legal practice.

### PREREQUISITE/S (at level 3000 or below, with at most one course at level 3000)

HS1501

### READING REFERENCE/S

To be provided later.