

Artificial Intelligence and Classical Greek Philosophy: A Conceptual Bridge from Plato and Aristotle to Kant, Russell, and Wittgenstein

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Abstract:

Artificial intelligence (AI) is often presented as a modern engineering discipline, yet its core questions—What is knowledge? What is reasoning? What does it mean to “understand”? —are deeply philosophical. This article builds a conceptual bridge between (i) Classical Greek philosophy (especially Plato and Aristotle), (ii) modern philosophy (Kant, Russell, Wittgenstein), and (iii) the mathematical foundations of AI and machine learning (ML). We show that symbolic AI inherits Aristotelian logic, representation learning echoes Platonic concerns about universals and forms, Kantian “categories” resemble inductive biases and model constraints, Russell’s logicism anticipates formal languages and verification, and Wittgenstein’s meaning-as-use reframes what it would mean for AI systems to “understand” language. We then connect these philosophical themes to the mathematics that powers ML: optimization, probability, linear algebra, and information theory.

Keywords:

Artificial intelligence, inductive bias, information theory, machine learning, optimization.