

Building Imaginative AI through Cross-SVD and Human Thought

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Abstract

Recent rising in artificial intelligence development have demonstrated remarkable capabilities in language generation, question-answering, summarization, and wide-convergence of fundamental linguistic tools. However, current AI systems remain fundamentally limited by their dependence on statistical pattern matching, often lacking the reliability, contextual understanding, and imaginative reasoning that characterize human cognition. This talk revisits the role of AI from the perspective of the human thought process, arguing that future AI should move beyond prediction-driven architectures toward models that better integrate reliable reasoning with creation and imagination capabilities.

The study examines how humans integrate the Five Aggregates (Khandha) components—form, feeling, perception, mental formations, and understanding—guided by consciousness and awareness—to construct meaning, generate hypotheses, and solve novel problems through imagination. It discusses the strengths and limitations of contemporary large language models and explores why factual accuracy, logical consistency, and creativity remain significant challenges. Building on these observations, the talk introduces a conceptual framework in which reliable knowledge representation, dynamic reasoning, and imaginative exploration coexist as complementary cognitive functions rather than competing objectives.

Receiving the benefits of recent developments in natural language processing, knowledge representation, reasoning, and Buddhist-inspired AI, the presentation outlines research directions for designing AI systems that are not only more trustworthy but also capable of supporting creativity and scientific discovery. A central focus of the talk is the introduction of an original framework, Cross-SVD (Cross-domain Singular Value Decomposition), a novel approach for building imaginative AI. Unlike conventional generative models that primarily rely on pattern completion within a single domain, Cross-SVD discovers and transfers latent semantic structures across heterogeneous domains, enabling AI to generate genuinely cross-domain creative ideas. Preliminary results demonstrate its potential to transform artistic concepts into novel cooking recipes and poetry while preserving their underlying artistic concepts. These findings suggest that the Cross-SVD approach can support broader forms of analogical and interdisciplinary creativity.

The talk concludes by presenting a roadmap toward next-generation human-intelligent AI. It argues that while large language models function as powerful information compressors, they remain limited in reliable reasoning and reflective cognition. To address these limitations, the presentation introduces Semantically Aware Reasoning (SAR) as an intermediate reasoning layer, followed by a computational model of human thought processes inspired by Five Aggregates, and imagination. Building upon the Five States of Mind Enlightenment and Buddhist-inspired AI, the proposed framework integrates reliable knowledge representation, causal reasoning, reflective evaluation, and imaginative exploration.