Coloring semantic spaces: Towards perceptually grounded models of word meaning

Abstract: Most modern approaches to word meaning in linguistics, artificial intelligence, and cognitive science are subject to the symbol grounding problem, that is, the problem that meaning is represented in terms of symbols that, in turn, need an interpretation. Recent results in cognitive science suggest instead that the conceptual knowledge underlying word meaning is fundamentally grounded in experience (action, perception, and introspection). Our research aims at perceptually grounding distributional or semantic space models of word meaning using visual information extracted from images. Profiting from recent developments in computer vision, we build multimodal (textual and visual) models and show that 1) visual information helps model word meaning in general as well as vision-specific tasks related to color, 2) the visual and textual modalities capture complementary aspects of word meaning.