

Planning in Creative Contexts



Alexander Spangher

Abstract:

Recent modeling innovations incorporate planning — or reasoning about actions and future states, exhibited by models like GPT-o1 and Deepseek's R1 — and have demonstrated impressive performance gains in areas like mathematical problem-solving and computer coding. However, such domains are characterized by well-defined goals (or rewards); for many human-centered creative tasks, rewards are not as clearly defined and it is thus not clear how to make similar progress in these domains. In this talk, I will outline a research agenda that can enable us to make progress in these fundamentally human processes. I focus on tasks related to journalism, where there is a pressing need for innovation, and in this talk I will focus specifically on the task of retrieving a set of sources relevant to a news story. I will show how we can make inferences about human actions based on environmental state-observations (a process known to cognitive psychologists as "end-state" or "ghost conditions", but as yet unexplored in machine learning) and how these inferences can help us learn human values and rewards.

Biography:

Alexander Spangher is pursuing his PhD in computer science at the University of Southern California; he is formerly a writer and data scientist at the New York Times. He focuses on computational journalism and is advised by Jonathan May, Emilio Ferrara and Nanyun Peng. His research is broad and has pursued the following side directions: he has worked at Microsoft Research under the mentorship of Eric Horvitz to detect misinformation. He has collaborated with EleutherAI to build state-of-the-art symbolic music models. Finally, he has collaborated with the MIT Plasma Science and Fusion Center (PFSC) to model disruptions in nuclear fusion reactions. His work has received numerous awards: 2 Outstanding Paper Awards at EMNLP 2024, 1 Spotlight Award at ICML 2024, and an Outstanding Paper Award at NAACL 2022. He is fortunate to be supported by a 4-year Bloomberg PhD Fellowship.