

Communities of AI agents for biomedical discoveries

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Abstract:

Scientific progress is a collective endeavor, emerging from communities of researchers who challenge ideas and build on one another's work. This talk explores how we can similarly organize AI scientist agents into teams and communities that collaborate at scale. I'll first introduce the Virtual Lab—a collaborative team of AI scientist agents conducting in silico research meetings to tackle open-ended research projects. As an example application, the Virtual Lab designed new nanobody binders to recent Covid variants that we experimentally validated. Then I will introduce the Virtual Biotech, a platform where tens of thousands of AI agents work together to advance drug discovery and development. Finally I will discuss, Paper2Agent, an automated platform to transform knowledge from static papers into dynamic virtual authors that make researcher easier to reproduce, reuse and extend.

Bio:

James Zou is an associate professor of Biomedical Data Science at Stanford University. He works on developing cutting-edge AI for biomedical applications. His group developed many widely used innovations including EchoNet AI (FDA cleared for assessing cardiac function), Gradio (used by over a million developers), and SyntheMol (NY Times 2024 Good Tech). He has received the Overton Prize, Sloan Fellowship, NSF CAREER Award, two Chan-Zuckerberg Investigator Awards, a Top Ten Clinical Achievement Award, best paper awards at ICML and other AI conferences, and faculty awards from Google, Amazon, Adobe and Apple.