

Planning in the Era of Language Models

NeurIPS 2025 Tutorial

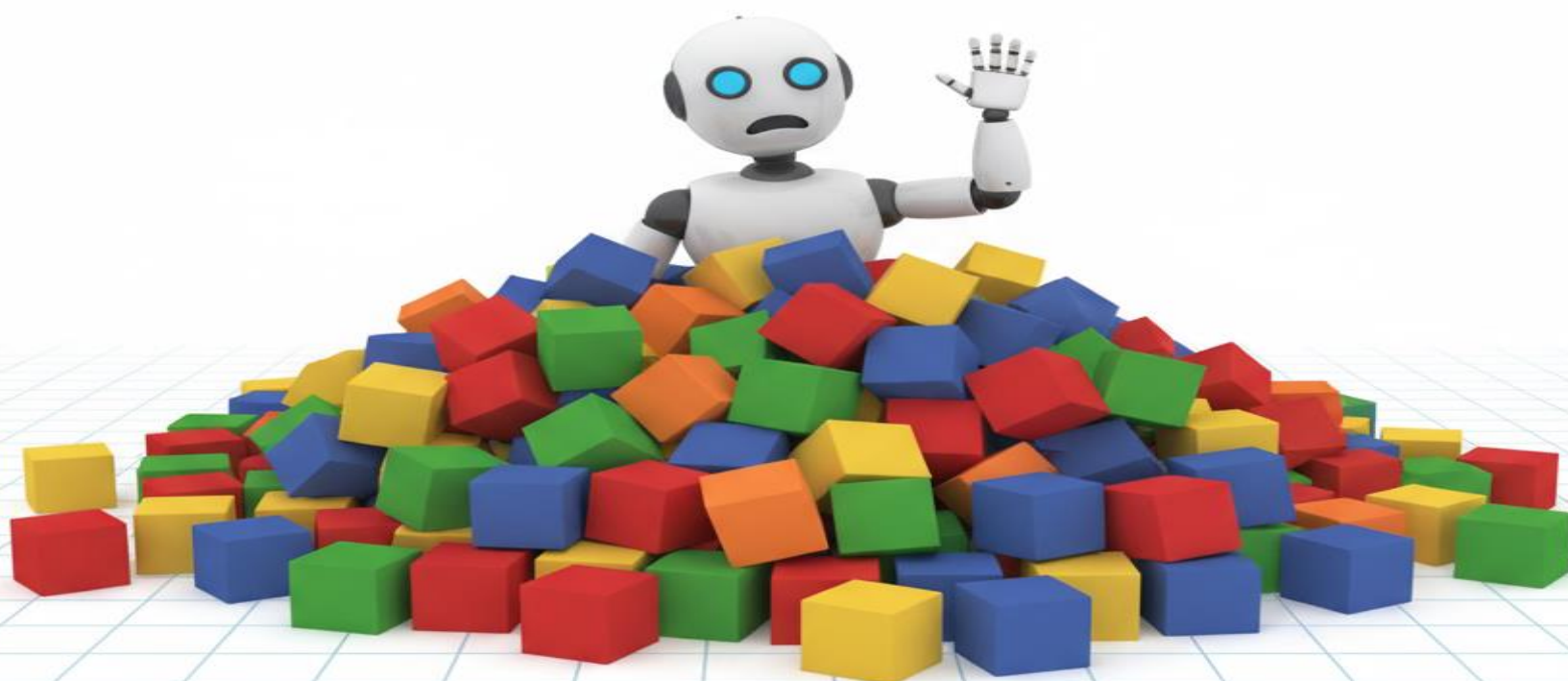
Michael Katz

IBM Research, USA

Harsha Kokel

Christian Muise

Queen's University, CA



Outline

- **Introduction: What is Planning**
 - What kind of planning problem do I have aka Planning Formalisms
 - What kind of solutions am I looking for aka Computational Problems
 - How can I describe my planning problem aka Planning Languages
- **Solving Planning Problems**
 - Pre-LLM era
 - Early LLM era
 - Modern LLM era
- **Tools to learn and work with planning models**
 - Planning tools you can use to build, solve, and analyze models
 - Time series data to PDDL (MACQ)
 - Natural language to PDDL (L2P)
- **Evaluating core reasoning for reliable planning tasks**
 - Core Reasoning Tasks for Reliable Planning
 - ACPBench Dataset
 - Evaluation with LM-Eval Harness
 - Planning Benchmark Desiderata
 - Countdown domain

Make Planning Research Rigorous Again!

Michael Katz
IBM T. J. Watson Research Center
Yorktown Heights, NY 10598
michael.katz1@ibm.com

Harsha Kokel
IBM Almaden Research Center
San Jose, CA 95120
harsha.kokel@ibm.com

Christian Muise
Queen's University
Kingston, Canada
christian.muise@queensu.ca

Shirin Sohrabi
IBM T. J. Watson Research Center
Yorktown Heights, NY 10598
ssohrab@us.ibm.com

Sarath Sreedharan
Colorado State University
Fort Collins, CO 80523
sarath.sreedharan@colostate.edu

