

Plan and Program Synthesis: A New Look at Some Old Problems

Sheila A. McIlraith

Department of Computer Science, University of Toronto, Toronto, Canada
sheila@cs.toronto.edu

Abstract

The proliferation of programmable devices, personal assistants, and autonomous systems presents fundamental challenges to the deployment of safe, predictable systems that can work together, interact seamlessly with humans, and that are *taskable* and *instructable* by people who may not know how to program. In this talk, we will revisit the classical problem of program synthesis through the lens of AI automated planning. We will present recent advances in AI automated planning principles and computational methods that support the synthesis of plans with goals and preferences specified in Linear Temporal Logic and Regular Expressions. Moving from automated planning in deterministic domains to planning in nondeterministic domains, we will explore the pathway to synthesizing programs that are taskable and instructable by exploiting state-of-the-art AI planning technology.

1998 ACM Subject Classification I.2.2 Automatic Programming

Keywords and phrases planning, program synthesis, linear temporal logic, regular expressions

Digital Object Identifier 10.4230/LIPIcs.TIME.2017.3

Category Invited Talk



© Sheila A. McIlraith;

licensed under Creative Commons License CC-BY

24th International Symposium on Temporal Representation and Reasoning (TIME 2017).

Editors: Sven Schewe, Thomas Schneider, and Jef Wijsen; Article No. 3; pp. 3:1–3:1

Leibniz International Proceedings in Informatics



LIPICs Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany