Czech Technical University in Prague  
Faculty of Electrical Engineering  
Department of Computer Science and Engineering

DIPLOMA THESIS ASSIGNMENT

Student: Daniel Fišer

Study programme: Open Informatics  
Specialisation: Artificial Intelligence

Title of Diploma Thesis: Inference of State Invariants for Domain-Independent Planning

Guidelines:

During the Semester Project, the student studied and analysed existing methods for automatic inference of state invariants and implemented a classical planner using Multi-Valued Task representation. His Diploma work will continue in this direction.
1) Study literature in the area of state invariant inference for classical planning and application of the invariants in the planning process.
2) Design a new method for state invariant inference.
3) Prove soundness, completeness and complexity of the method under defined assumptions.
4) Implement the method.
5) Validate and verify the implementation in the already implemented classical planner.
6) Experimentally evaluate practical efficiency of the method and compare it to existing approaches on the standard planning benchmark set.

Bibliography/Sources:

[4] Patrik Haslum: \( h(m) = h_1(P_m) \): Alternative Characterisations of the Generalisation From hmax To hm. ICAPS 2009

Diploma Thesis Supervisor: Ing. Antonin Komenda, Ph.D.

Valid until the end of the summer semester of academic year 2016/2017

prof. Ing. Filip Železný, Ph.D.  
Head of Department  
prof. Ing. Pavel Ripka, CSc.  
Dean