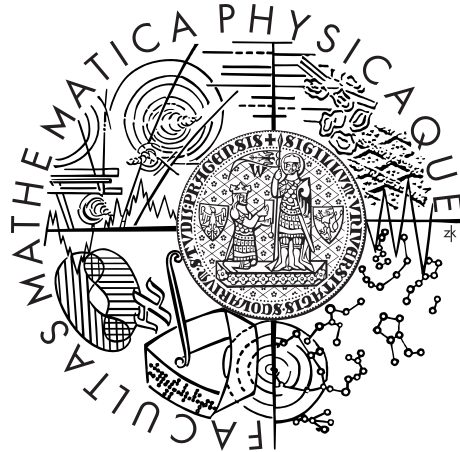Charles University in Prague

Faculty of Mathematics and Physics

DOCTORAL THESIS

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Control algorithms for autonomous embodied agents

Department of Software Engineering

Supervisor of the doctoral thesis: Mgr. Roman Neruda, CSc.

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Title: Control algorithms for autonomous embodied agents

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Abstract: This work studies control algorithms for adaptive embodied agents. The available approaches, based on neural networks, genetic algorithms and reinforcement learning are investigated and potential improvements suggested. Architecture of adaptive embodied autonomous agents, that combines the existing reactive and deliberative paradigms, is proposed and demonstrated in a realistic simulator solving a complex real world task. The performance of a novel high-level planner based on constraint programming and finite automata is demonstrated on a practical application.