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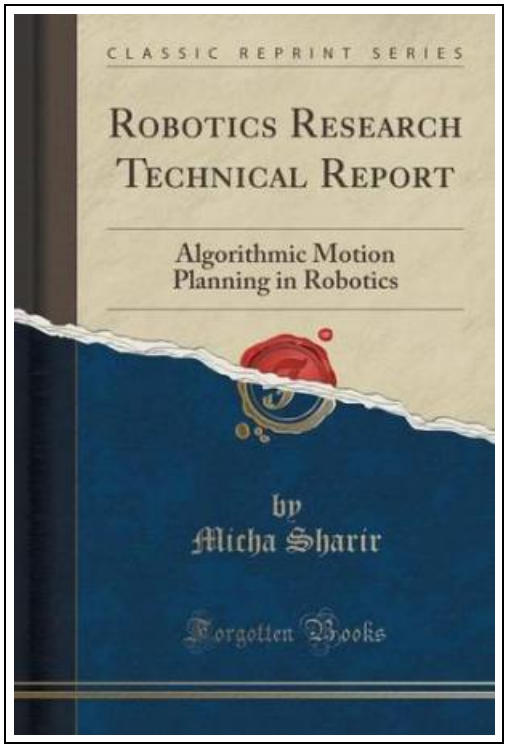

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ROBOTICS RESEARCH TECHNICAL REPORT: ALGORITHMIC MOTION PLANNING IN ROBOTICS (CLASSIC REPRINT)

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Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Robotics Research Technical Report: Algorithmic Motion Planning in Robotics 1. Introduction This paper surveys recent progress in algorithmic motion planning in robotics. Research on theoretical problems in robotics looks ahead to a future generation of robots that will be considerably more autonomous than present robotic systems. The main objective is to endow robotic systems with various basic capabilities that they will need to possess in order to operate in an intelligent and independent manner. These improved capabilities can be grouped into three broad categories: sensing, planning, and control. That is, the system should be able to gather information about its workspace through a variety of sensing devices (vision, tactile, or proximity sensing, etc.), analyze and transform the raw sensory data into a world model of the environment, use this model to plan tasks that it is commanded to execute (navigation, assembly, inspection, machining, etc.), where planning amounts to breaking up the complex task into a sequence of simple subgoals, whose combined execution will accomplish the desired task, and finally obtain a low-level control loop which monitors the actual execution of each planned substep of the task. Of these three categories, the planning stage aims to allow the robot s user to specify a desired activity in very high level, general terms, and then have the system fill in the missing low-level details. For example, the user might specify the end product of some assembly process, and ask the system to construct a sequence of assembly substeps; or, at a less demanding level, to plan collision-free motions which pick up individual subparts of an object to be assembled, transport them to their assembly position, and insert...

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