Gross Motion Planning - Structure and Approach

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Overview

General structure of the article

- Introduction
- Part I - Nature of Motion Planning
- Part II - Basic Issues and Steps in Motion Planning
- Part III - Survey of Recent work
- Part IV - Conclusions

Part I - Nature of Motion Planning

- Introduction
- Part I - Nature of Motion Planning
  - Definition of terms
  - Complexity of Motion Planning
  - Classification of Motion Planning Problems
  - Classification of Motion Planning Algorithms
- Part II - Basic Issues and Steps in Motion Planning
- Part III - Survey of Recent work
- Part IV - Conclusions

Purpose of Part I

- Provide basic terminology
- Give motivation
- Describe common classification for problems and algorithms in MP

Part II - Basic Issues and Steps in Motion Planning

- Introduction
- Part I - Nature of Motion Planning
- Part II - Basic Issues and Steps in Motion Planning
  - World Space vs Configuration Space
  - Object Sensing and Representation
  - Approaches to Motion Planning
  - Search Methods
  - Local Optimization of Motion
- Part III - Survey of Recent work
- Part IV - Conclusions

Purpose of Part II

- Show how MP formulations usually do look like
- Give overview over existing approaches and methods in MP
- Provide tools for understanding recent works in MP
  (previous works and algorithms are often the basis of newer approaches)

Part III - Survey of Recent Work

- Introduction
- Part I - Nature of Motion Planning
- Part II - Basic Issues and Steps in Motion Planning
- Part III - Survey of Recent work
  - Stationary Environments
  - Time Varying Environments
  - Motion Planning with constraints
  - Movable Object Problem
  - Comparison Tables
- Part IV - Conclusions

Purpose and Structuring of Part III

Purpose

- present recent work
- compare different contributions

Structuring

- Divided into Problem Classes
- Further divided into different approaches

Purpose of Part IV

- Summarizes contribution to current state
- Problems solved or closer to being solved
- Still open problems

Conclusion

Very intuitive structuring...

- Part I allows to get the basics
- Part II provides and explains the structuring of Part III
- Part III shows the recent work and compares it
- Part IV provides an overview over the current state