

Robot Path Planning Using Geodesic And Straight Line Segments With Voronoi Diagrams Rsd Tr University Of Michigan Center For Research On Integrated Manufacturing Robot Systems Division

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[Robot Path Planning Using Geodesic](#)

Smooth and energy saving gait planning for humanoid robot ...

Smooth and energy saving gait planning for humanoid robot using geodesics Liandong Zhang* and Changjiu Zhou Advanced Robotics and Intelligent Control Centre, Singapore Polytechnic, Singapore Abstract A novel gait planning method using geodesics for humanoid robot is given in this paper Both the linear inverted

PATH PLANNING BASED ON GEODESIC LENGTH AND ...

i;pg) of the path, which are measured on the image space The algorithm for computing L G and "is discussed for 2D and 3D workspaces and some path planning examples are provided for single and multiple sequential visiting stations Keywords| Robotics, path planning, image processing, geodesic length, tortuosity

Mathematical Morphology and Binary Geodesy for Robot ...

using the wave-front of the geodesic distance of the mathematical morphology The optimal path will be the one that minimize the direction changes of the robot The algorithm of optimal path will be applied in several and complex 2-D environments 1 Introduction In path planning for robot navigation it is necessary to know information about the

Geodesic motion planning on 3D- terrains satisfying the ...

Abstract—In this article, a robot motion planning scheme for 3D-terrains is developed Given the terrain profile and various obstacles on it, a navigation function is created A geodesic based shortest path algorithm is developed to find the optimal lengthwise path towards the goal position The path is then

Optimal robot plant planning using the minimum-time ...

Optimal Robot Path Planning Using the Minimum-Time Criterion JAMES E BOBROW shown that a path in the form of a geodesic minimizes lower bound on the traversal time The research reported here falls into category 3, and is similar to Manuscript received May 12

Path Planning in a Dynamic Environment - thesai.org

A Path Planning Versus Navigation Path planning and navigation are two important areas in the control of autonomous mobile robots In both cases, solving the problem is to move the mobile robot while taking into account the internal and external constraints (eg, limits of the actuators and obstacles) [1] [4] [10]

General Path Planning Methodology or Leader-Follower Robot ...

International Journal of Advanced Robotic Systems General Path Planning Methodology or Leader-Follower Robot Formations Regular Paper Santiago Garrido1,*; Luis ...

How to deal with di culty and uncertainty in the Outdoor ...

the shortest path between the two points, ie, the geodesic distance Applying matrix W , the proposed method gives a path which considers the features of the surface and the limitations of the robot Moreover, it also gives us information about the speed of the ...

IEEE TRANSACTIONS ON CYBERNETICS, VOL. 46, NO. 5, MAY ...

IEEE TRANSACTIONS ON CYBERNETICS, VOL 46, NO 5, MAY 2016 1217 Robotic Online Path Planning on Point Cloud Ming Liu, Member, IEEE Abstract—This ...

Robot Formations Motion Planning using Fast Marching

Robot Formations Motion Planning using Fast Marching Santiago Garrido*, Luis Moreno*, Pedro U Lima; and Javier V G´omez* Abstract—This paper presents the application of the Voronoi Fast Marching method to Path Planning of Mobile Formation Robots The ...

Optimal robust path planning in general environments ...

Abstract-We address robust path planning for a mobile agent in a general environment by finding minimum cost source-des- tination paths having prescribed widths The main result is a new approach that optimally solves the robust path planning problem using an efficient network flow formulation Our al-

A New Path Generation Algorithm Based on Accurate NURBS ...

The review of research works on robotic path planning shows that most of them provide a piecewise linear solution Thus, the robot following this path has to stop and restart frequently, which causes the waste of energy To obtain a smooth path, many curves have been introduced as path

primitives The focus is on turning a sequence of

3D Path Planning Based on Nonlinear Geodesic Equation

3D path planning based on nonlinear geodesic equation Kun-Lin Wu 1 Chi-Wen Lo Yueh-chen Lin and Jing-Sin Liu 1 y Abstract A lot of methods have been proposed for 2D path planning of mobile robot, which could be a mobile platform or

Asymptotically-optimal Path Planning on Manifolds

applied to the configuration spaces arising in path planning In Robotics, a recent method addresses the problem of optimal path planning on manifolds [10], but it requires an exhaustive representation of the manifold using a dense set of samples, which negatively effects the scalability of the method

Smooth and Accurate Trajectory Planning for Industrial Robots

of a 2DOFs (degrees of freedom) robot in the three- dimensional Euclidean space [9] They introduced geodesics on the dynamic surface to ...

Multi-robot Coverage and Exploration on Riemannian ...

Multi-robot Coverage and Exploration on Riemannian Manifolds with Boundary Subhrajit Bhattacharya Robert Ghrist Vijay Kumar Abstract Multi-robot coverage and exploration are fundamental problems in robotics A widely-used, efficient and distributable algorithm for achieving coverage of a convex environment with Eu-

Path Planning Methods for Autonomous Underwater Vehicles

Path Planning Methods for Autonomous Underwater Vehicles by Konuralp Yi git Submitted to the Department of Mechanical Engineering on May 6, 2011, in partial fulfillment of the requirements for the degree of Master of Science in Naval Architecture and Marine Engineering Abstract From naval operations to ocean science missions, the importance of

RRT-Based Nonholonomic Motion Planning Using Any-Angle ...

RRT-Based Nonholonomic Motion Planning Using Any-Angle Path Biasing Luigi Palmieri Sven Koenig Kai O Arras Abstract |RRT and RRT* have become popular planning techniques, in particular for high-dimensional systems such as wheeled robots with complex nonholonomic constraints Their planning times, however, can scale poorly for such robots,

Motion Planning with Diffusion Maps

Motion Planning with Diffusion Maps Yu Fan Chen, Shih-Yuan Liu, Miao Liu, Justin Miller, and Jonathan P a robot needs to leverage the knowledge of the map to find good paths quickly, and to replan locally construct a path library [3] to solve for new queries more efficiently However, these methods tend to ...

Global Planning for Multi-Robot Communication Networks in ...

Global Planning for Multi-Robot Communication Networks in Complex Environments Yiannis Kantaros, Student Member, IEEE, and Michael M Zavlanos, Member, IEEE A communication model that accounts for multi-path fading of channels is proposed in [14], where robot mobility is exploited free geodesic paths and depends on the solution of