

# **Solving The Narrow Corridor Problem In Potential Field-Guided Autonomous Robots**

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## **Summary**

This paper tackles the issue of converting the guidance signal from the gradient of a potential field into a control signal that can both guide an autonomous robot and effectively manage its dynamics. Particular emphasis is placed on dealing with the "narrow corridor" artifact reported by Koren and Borenstien [1] which the attractor-repeller potential field paradigm proposed by Khatib [2] suffers from. The suggested solution is based on a novel concept this paper introduces called: nonlinear, anisotropic, dampening forces. In addition to eliminating the narrow corridor artifact, improving the quality of the trajectory, the suggested solution significantly increases the speed of the robot. Theoretical development along with simulation results are provided.

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