





1	one inch + \hoffset	2	one inch + \voffset
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5	\headheight = 0pt	6	\headsep = 0pt
7	\textheight = 304pt	8	\textwidth = 405pt
9	\marginparsep = 10pt	10	\marginparwidth = 35pt
11	\footskip = 0pt		\marginparpush = 7pt (not shown)
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# Some Sensing and Perception Techniques for an Omnidirectional Ground Vehicle with a Laser Scanner

Zhen Song, YangQuan Chen, Lili Ma and You Chung Chung

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## Abstract

This paper presents some techniques for sensing and perception for an omnidirectional ground autonomous vehicle equipped with a laser scanner. In an assumed structured environment, the sensor data processing methods for both 1D and 2D laser scanners, are discussed. Raw data are segmented to lines, circles, ellipses, planes and corners by task dependent segmentation algorithms. Each subset of data is then fit by known template shapes as listed above. An arbitrator is used to discriminate the shape for the final object identification.

**Key Words:** Hough transform; line fitting; corner fitting; arc/circle fitting; ellipse fitting; algebraic fitting; object arbitrator; Omni-directional vehicle (ODV).

# Title



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