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IMCCC 2015

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Classify and Prospect of Indoor Positioning and Indoor Navigation 1893
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Mingyu Gao, Lin Ye, and Yeqing Yan

Time-Optimal Trajectory Planning of Industrial Robots Based on Particle Swarm Optimization 1934
Mingyu Gao, Pan Ding, and Yuxiang Yang

TV Corner Mark Recognition Algorithm Based on Feature Fusion 1940
Sun Yuzhe, Lan Shanzhen, and Li Shaobin

A BLDCM Driver Based on High Frequency Link Matrix Converter 1945
Ying Xiao, Zhaoyang Yan, Yalin Wang, Guang Zhang, and Jianxia Li

Analysis to Space Location Between Excitation Coil and Induction Coil of Unilateral Axle Counting Sensor 1951
Weiming Tong , Yanlong Liu, Xianji Jin, and Zhongwei Li

Design of the Pipeline Endoscopic System 1955
Liu Chunhao and Song Hua

MR-OA: An Effective Framework for NCW Study Based on Multi-agent Simulation 1961
Xuefei Yan, Xinming Li, Dong Liu, and Xitao Zhang

Identification of Mass Characteristic Parameters for Spacecraft Based on Differential Evolution Algorithm 1967
Mingliang Suo, Xinlong Chen, and Shunli Li

Adaptive Pose Tracking Control for On-Orbit Tumbling Target Spacecraft 1972
Ying Chen, Siyuan Rong, Shunli Li, and Chen He

Sliding Mode Attitude Controller Design Based on ESO for Flexible Satellite without Angular Rate Measurement 1977
Zhiping Zhang, Siyuan Rong, and Shunli Li

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