Taylor / Kleeman

Visual Perception and Robotic Manipulation

3D Object Recognition, Tracking and Hand-Eye Coordination

As autonomous robots expand into the service domain, new solutions to the challenge of operating in domestic environments must be developed. Widespread adoption of service robots demands high robustness to environmental change and operational wear, and minimal reliance on application specific knowledge. As such, rich sensing modalities such as vision will play a central role in their success. This book takes steps towards the realization of domestic robots by presenting an integrated systems view of computer vision and robotics, covering fundamental topics including optimal sensor design, visual servoing, 3D object modelling and recognition, and multi-cue tracking, with a solid emphasis on robustness throughout. With in-depth treatment of both theory and implementation, extensive experimental results and comprehensive multimedia support including video clips, VRML data, C++ code and lecture slides, this book has wide appeal to both theoretical and practical roboticists and stands as a valuable teaching resource.

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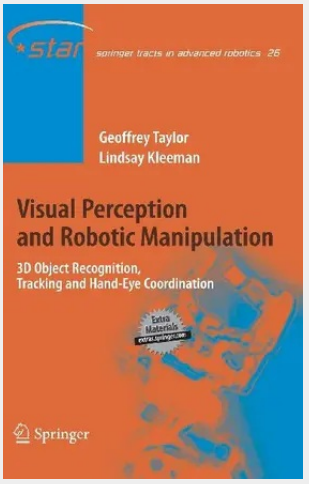

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