

Contents

Part I Practical Applications of Object Tracking Algorithms

Accurate Tracking of Fast Objects with a Weak Video

Input Signal	3
Robert Bieda and Krzysztof Jaskot	

Applying Colour Image-Based Indicator for Object Tracking	23
Zygmunt Kuś, Jarosław Cymerski, Joanna Radziszewska and Aleksander Nawrat	

Image Processing in Thermal Cameras	35
Tomasz Sosnowski, Grzegorz Bieszczad and Henryk Madura	

Nystagmus Detection System	59
Robert Bieda, Krzysztof Jaskot and Jan Łazarski	

Weighted Pattern Vector for Object Tracking with the Use of Thermal Images	75
Zygmunt Kuś, Joanna Radziszewska and Aleksander Nawrat	

Pixel Classification for Skin Detection in Color Images	87
Bartosz Binias, Mariusz Frąckiewicz, Krzysztof Jaskot and Henryk Palus	

Part II Design of Control Algorithms for Unmanned Mobile Robots

Combining Data from Vision and Odometry Systems for More Accurate Control of Mobile Robot	103
Robert Bieda, Krzysztof Jaskot, Tomasz Łakota and Karol Jędrasiak	

Hierarchical Game Approach to Solve Conflicts in Multiagent Systems	135
Witold Brandys, Adam Gałuszka, Karol Jędrasiak, Joanna Radziszewska and Krzysztof Daniec	

Suppressing Disturbances in the UAV's Control System Based on the Modified BLT Method	147
Zygmunt Kuś and Aleksander Nawrat	
The Airspeed Automatic Control Algorithm for Small Aircraft	157
Sławomir Samolej, Marek Orkisz and Tomasz Rogalski	
UAV Swarm Management Using Prepar3D	169
Mariusz Domżał, Karol Jędrasiak, Paweł Iwaneczko, Krzysztof Jaskot and Aleksander Nawrat	
Part III Computer Models and Simulations	
Advanced Ballistic Model and Its Experimental Evaluation for Professional Simulation Systems	195
Karol Jędrasiak, Jarosław Cymerski, Przemysław Recha, Damian Bereska and Aleksander Nawrat	
Manual Calibration of System of the Image Projection Based on DLP Projectors	229
Dawid Sobel, Karol Jędrasiak, Jarosław Cymerski, Konrad Osiński, Damian Bereska and Aleksander Nawrat	
The Mathematical Model of the Human Arm	241
Robert Bieda and Krzysztof Jaskot	
Interactive Application Using Augmented Reality and Photogrammetric Scanning	267
Karol Jędrasiak, Natalia Hładczuk, Krzysztof Daniec and Aleksander Nawrat	
Part IV Experimental Investigation of Dynamic Characteristics	
Proving Ground Tests of Selected Energy Absorbing Structure Variants Under a Shock Wave Load	293
Tadeusz Niezgoda, Grzegorz Sławiński, Paweł Bogusz and Marek Świerczewski	
Temperature Correction of Measurements Results of 3-Axis Accelerometers in IMU Modules	311
Witold Ilewicz, Damian Bereska, Marcin Pacholczyk and Aleksander Nawrat	
Experimental Investigation of IED Interrogation Arm During Normal Operation and Mine Flail Structure Subjected to Blast Loading	321
Wiesław Barnat, Andrzej Kiczko, Paweł Gotowicki, Paweł Dybcio, Marcin Szczepaniak and Wiesław Jasiński	

Indoor Navigation with Micro Inertial Navigation Technology	337
Paweł Iwaneczko, Karol Jędrasiak and Aleksander Nawrat	
The Concept of RFID-Based Positioning System for Operational Use	347
Mateusz Opuchlik, Karol Jędrasiak, Jarosław Cymerski, Damian Bereska and Aleksander Nawrat	
About the Book	361
Author Index	363

Advanced Technologies in Practical Applications for
National Security

Nawrat, A.; Bereska, D.; Jędrasiak, K. (Eds.)

2018, XIII, 363 p. 278 illus., 224 illus. in color.,

Hardcover

ISBN: 978-3-319-64673-2