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Universal Knowledge"; "2.3 AI Bricks as Important Parts of Cloud Robotics"; "2.4 Evaluating the Contribution of Cloud Robotics"; "2.5 Tele-Scope and Cloud-Based Technology for Monitoring and Tele-control"; "2.6 Monitoring and Analyzing Real-Time Data Using Telescope System"; "3 Finding a Way towards Learning Machines"; "4 Emotions and Robotsa€?A Part of the Human RobotInteraction"; "4.1 Theory of RIEM (Robotic Integral Emotional Models)" "4.2 Consequences of RIEM to Human Robot Interaction" "5 Estimating the Future of Intelligent Machines"; "References"; "Tacit Learning for Emergence of Task-Related Behaviour through Signal Accumulation"; "1 Introduction"; "2 Tacit Learning Controllers"; "3 Two-Links Robotic System"; "3.1 Task and Control"; "3.2 Simulation Results"; "4 Discussion and Future Work"; "4.1 Stability"; "4.2 Motor Control"; "5 Conclusion"; "References"; "Simulating Synthetic Emotions with Fuzzy Grey Cognitive Maps"; "1 Introduction"; "2 Theoretical Background" "2.1 Two-Dimensional Emotion Representation in Thayera€?s Model" "3 Fuzzy Grey Cognitive Maps"; "3.1 Fundamentals"; "3.2 FGCM Advantages over FCM"; "4 Illustrative Example"; "5 Conclusions"; "References"; "The Design and Implementation of Quadrotor UAV"; "1 Introduction"; "2 Hardware"; "3 Quadrotor Model"; "4 Controller Design"; "5 Software Solution"; "5.1 ARM Application"; "5.2 Base Station"; "5.3 Computer Vision System"; "6 Conclusion"; "References"; "Computers Capable of Distinguishing Emotions in Text"; "1 Introduction" "2 Sentiment Analysis and Emotion" "2.1 Emotion Models"; "3 Proposal of System for Detecting Emotions"; "4 Conclusion"; "References"; "Grammar Representation Forms in Natural Language Interface for Robot Controlling"; "1 Introduction"; "2 Grammar Representations"; "3 Efficiency of the Representation Models"; "4 Robot Control Application"; "References"; "Basic Motion Control of Differential-Wheeled Mobile Robot ALFRED"; "1 Introduction"; "2 Mobile Robot ALFRED"; "2.1 Mechanics"; "2.2 Electronics"; "3 Wheel Speed Sensing"; "4 Wheel Speed Regulation" "4.1 Feedback Regulator"

## Sommario/riassunto

What is the Role of Intelligent Technologies in the Next Generation of Robots ? This monograph gives answers to this question and presents emergent trends of Intelligent Systems and Robotics. After an introductory chapter celebrating 70 year of publishing the McCulloch Pitts model the book consists of the 2 parts „Robotics“ and „Intelligent Systems“. The aim of the book is to contribute to shift conventional robotics in which the robots perform repetitive, pre-programmed tasks to its intelligent form, where robots possess new cognitive skills with ability to learn and adapt to changing environment. A main focus is on Intelligent Systems, which show notable achievements in solving various problems in intelligent robotics. The book presents current trends and future directions bringing together Robotics and Computational Intelligence. The contributions include widespread experimental and theoretical results on intelligent robotics such as e.g. autonomous robotics, new robotic platforms, or talking robots.