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Nota di contenuto	Analyzing Action Representations -- The Systems Theory of Contact -- An Associative Perception-Action Structure Using a Localized Space Variant Information Representation -- The Structure of Colorimetry -- Fast Calculation Algorithms of Invariants for Color and Multispectral Image Recognition -- Modelling Motion: Tracking, Analysis and Inverse Kinematics -- The Lie Model for Euclidean Geometry -- On the Geometric Structure of Spatio-temporal Patterns -- Learning Geometric Transformations with Clifford Neurons -- Hurwitzion Algebra and its Application to the FFT Synthesis -- Diffusion–Snakes Using Statistical

Shape Knowledge -- The Multidimensional Isotropic Generalization of Quadrature Filters in Geometric Algebra -- Sparse Feature Maps in a Scale Hierarchy -- Estimation and Tracking of Articulated Motion Using Geometric Algebra -- Geometric Properties of Central Catadioptric Projections -- Lie-Theory and Dynamical Illumination Changes -- A Group Theoretical Formalization of Contact Motion -- Periodic Pattern Analysis under Affine Distortions Using Wallpaper Groups -- Wavelet Filter Design via Linear Independent Basic Filters -- Lie Group Modeling of Nonlinear Point Set Shape Variability -- Symmetries in World Geometry and Adaptive System Behaviour -- Pose Estimation in the Language of Kinematics -- Algebraic Frames for Commutative Hyperharmonic Analysis of Signals and Images -- Gabor-Space Geodesic Active Contours -- Color Image Enhancement by a Forward-and-Backward Adaptive Beltrami Flow -- Point–Based Registration Assuming Affine Motion -- Extended Kalman Filter Design for Motion Estimation by Point and Line Observations.

Sommario/riassunto

This volume presents the proceedings of the 2nd International Workshop on - gebraic Frames for the Perception and Action Cycle. AFPAC 2000. held in Kiel, Germany, 10–11 September 2000. The presented topics cover new results in the conceptualization, design, and implementation of visual sensor-based robotics and autonomous systems. Special emphasis is placed on the role of algebraic modelling in the relevant disciplines, such as robotics, computer vision, theory of multidimensional signals, and neural computation. The aims of the workshop are twofold: ?rst, discussion of the impact of algebraic embedding of the task at hand on the emergence of new qualities of modelling and second, facing the strong relations between dominant geometric problems and algebraic modelling. The ?rst workshop in this series, AFPAC'97. inspired several groups to i- tiate new research programs, or to intensify ongoing research work in this ?eld, and the range of relevant topics was consequently broadened, The approach adopted by this workshop does not necessarily ?t the mainstream of worldwide research-granting policy. However, its search for fundamental problems in our ?eld may very well lead to new results in the relevant disciplines and contribute to their integration in studies of the perception–action cycle.