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	Nota di contenuto	Analog VLSI Circuits for the Perception of Visual Motion; Contents; Foreword; Preface; 1 Introduction; 1.1 Artificial Autonomous Systems; 1.2 Neural Computation and Analog Integrated Circuits; 2 Visual Motion Perception; 2.1 Image Brightness; 2.2 Correspondence Problem; 2.3 Optical Flow; 2.4 Matching Models; 2.4.1 Explicit matching; 2.4.2 Implicit matching; 2.5 Flow Models; 2.5.1 Global motion; 2.5.2 Local motion; 2.5.3 Perceptual bias; 2.6 Outline for a Visual Motion Perception System; 2.7 Review of a VLSI Implementations; 3 Optimization Networks; 3.1 Associative Memory and Optimization 3.2 Constraint Satisfaction Problems3.3 Winner-takes-all Networks; 3.3.1 Network architecture; 3.3.2 Global convergence and gain; 3.4 Resistive Network; 4 Visual Motion Perception Networks; 4.1 Model for Optical Flow Estimation; 4.1.1 Well-posed optimization problem; 4.1.2 Mechanical equivalent; 4.1.3 Smoothness and sparse data; 4.1.4 Probabilistic formulation; 4.2 Network Architecture; 4.2.1 Non-

Sommario/riassunto	Although it is now possible to integrate many millions of transistors on a single chip, traditional digital circuit technology is now reaching its limits, facing problems of cost and technical efficiency when scaled down to ever-smaller feature sizes. The analysis of biological neural systems, especially for visual processing, has allowed engineers to better understand how complex networks can effectively process large amounts of information, whilst dealing with difficult computational challenges. Analog and parallel processing are key characteristics of biological neural networks. Analog VL