

Preface

This volume is a collection of research studies on the attempt to model emotions in complex autonomous systems. Several experts in the field are reporting their efforts and reviewing the literature in order to shed light on how the processes of coding and decoding emotional states took place in humans, which are the physiological, physical, and psychological variables involved, invent new mathematical models and algorithms to describe them, and motivate these investigations at the light of observable societal changes and needs, such as the aging population and the cost of health care services. The consequences are the implementation of emotionally and socially believable machines, acting as helpers into domestic spheres, where emotions drive behaviors and actions.

The implementation of such complex autonomous systems covers a wide collection of research problems and encompasses a wide range of social, theoretical and technological outcomes. Such heterogeneous research, requiring expertise from several, yet complementary scientific domains (such as cognitive, computational, and information communication technology sciences) can be developed only within a flexible and ample research coordination that pointed out what is needed from each complementary domain and which challenges the research should face in order to produce breakthroughs, cross-fertilization, and advances within constituent disciplines. We believe that the content of this volume will contribute to such an effort.

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Volume I

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