

## **Schriften zur Informations- und Kommunikationstechnik**

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## Preface

It already became a good tradition that approximately 20 – 30 scientists meet on Majorca Island every year in October to discuss advances and challenges in the area of autonomous systems. The first workshop took place in 2008 and was mainly a meeting of PhD students from 3 different departments of the FernUniversität in Hagen to discuss the progress of their work and meet with potential reviewers for their thesis. In the following years, more and more colleagues joined us and the meeting transformed into a platform for researchers to work out new ideas and get inspired from solutions of other research areas. The workshop benefits from its familiar atmosphere as well as its seclusion in a small hotel far away from the daily business and stress.

The contributions of the proceedings mostly give a survey about the recent research activities and interests of the participants in the context of autonomous systems. Thematically, this volume is divided into three main chapters.

Fast hardware and – today more than before – hardware-based security solutions are the fundamentals of autonomous systems, too and will be discussed in the first chapter. The range of works presented reaches from on-chip network solutions to their needed verification procedures.

Algorithms are the basis for various software solutions and thus are the topic of the second chapter. As broad as the field of application of autonomous systems may be, as wide the range of topics of our participants has been in this year. Most problems arise from making correct classifications, recognising properties and states of a system and deriving the right recommendations from them. Last but not least, security aspects of the communication in distributed systems have been discussed.

Whenever populations of autonomous objects, agents or systems operate in a shared environment, direct or indirect communication and/or cooperation occurs and self-organisation (e.g. structure building) takes place in most cases. Therefore, the third chapter deals with such structures, their emergence, analysis and evaluation as well as their modelling and evolution.

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