# Preface

Cognitive infocommunications (CogInfoCom) is an emerging interdisciplinary research field that has recently started to appear in the context of theoretical, R&D and industry-oriented projects.

Based on trends in EU and other government supported research, early forms of CogInfoCom have appeared in domestic as well as international projects. There are two key points which must be taken into consideration when asking the question why the emergence of CogInfoCom is timely and necessary. First, the infocommunications industry is seeing trends which are resulting in the gradual appearance of artificial cognitive capabilities, i.e. capabilities that are directed towards a broadened scope of sensing and processing of unstructured data. Second, the users of infocommunications devices will in the future expect not only to be able to have access to these artificial cognitive capabilities during everyday activities, but also to be able to extend them with their own cognitive capabilities and apply them flexibly – through their infocommunications devices – in a wide range of applications in both physical and virtual contexts.

The 1$^{st}$ International Conference on Cognitive Infocommunications was held in Tokyo in 2010. With the active participation of the startup committee – which comprised top professors in engineering and cognitive sciences from 9 different countries – a final definition of CogInfoCom was agreed upon (the definition, along with more detailed information on the various kinds of synergies expected from CogInfoCom can be found at http://www.coginfocom.hu). This process was not without lively debate, but after thorough consideration, all participants agreed that the proposed definition fully clarifies a synergy between the cognitive sciences and infocommunications, and as such will lead to a novel paradigm among emerging research fields.

The 2$^{nd}$ International Conference on Cognitive Infocommunications, held in Budapest in 2011, saw an even greater number of guests than the conference of the previous year. 10% of all papers presented at the conference were co-authored by area chairs from different fields. 40% of all papers presented at the conference were co-authored by researchers from different fields (for example, co-authored by professors of control theory, ethology and cognitive sciences). These numbers go well to show the interdisciplinary nature of CogInfoCom, and how much it encourages synergy between fields that were previously regarded as entirely distinct from each other.

This Special Issue on CogInfoCom, which contains extended versions of key ideas presented at CogInfoCom conferences, represents one of the first two volumes which have appeared in international scientific journals on the subject of CogInfoCom. A glance at the table of contents will inform the reader of the broad scope of theoretical considerations and practical applications that lie behind current CogInfoCom research. It is my hope that this Special Issue – along with

the CogInfoCom conference series – will help provide a scientific forum for researchers from areas related to CogInfoCom, so that they may develop stronger cooperation and a common language in order to create useful synergies and fulfill the interdisciplinary challenges behind CogInfoCom.


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