Preface

NeuroIS is a field in information systems (IS) which makes use of neuroscience and neurophysiological tools and theories to better understand the development, adoption, and impact of information and communication technologies. Despite the fact that a very limited number of publications on information technology and brain research have been available in the IS literature for approximately a decade, the idea of applying cognitive neuroscience approaches in IS research appeared at the 2007 International Conference on Information Systems (ICIS) and at two pre-ICIS meetings (Sixth Annual Workshop on Human-Computer Interaction Research in Management Information Systems and OASIS Workshop 2007). Since that time, the field has been developing at a stunning pace. Several NeuroIS papers, both conceptual and empirical in nature, have been published in premium IS journals such as *MIS Quarterly* and *Information Systems Research*. Moreover, the *Journal of Management Information Systems* and the *Journal of the Association for Information Systems* published NeuroIS special issues. Importantly, since 2009, an annual academic conference for presenting research and development projects at the nexus of IS and neurobiology is organized, the *Gmunden Retreat on NeuroIS* (www.NeuroIS.org). This annual event has the objective to promote the successful development of the NeuroIS field.

NeuroIS examines topics lying at the intersection of IS research and neurophysiology and the brain sciences. Specifically, NeuroIS studies comprise conceptual and empirical works, as well as theoretical and design science research. It includes research based on all types of neuroscience and neurophysiological tools, spanning techniques such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), hormone assessments, skin conductance and heart rate measurement, eye-tracking, and facial electromyography. Also, it is already foreseeable that quantitative and molecular genetics will play a role in future NeuroIS research.

Analyses of the existing NeuroIS literature show that contributions often address the following topics, among others: employment of neuroscience and neurophysiological methods and tools to study technology adoption, mental workload, Web site design, virtual worlds, technostress, emotions in human–computer interaction, e-commerce, social networks, information behavior, trust, IT security, usability, avatars, music and user interfaces, multitasking, memory, attention, IS design science, software development, risk, knowledge processes, and business process modeling and enterprise systems. As well, the discourse on methodological and ethical issues has been the subject of discussion in the extant literature.

Software prototypes of NeuroIS applications, which use bio-signals (e.g., EEG, skin conductance, pupil dilation) as system input, are also an important topic in the field, and NeuroIS scholars believe that this topic of neuro-adaptive information systems is one that holds significant potential, both from a theoretical and practical viewpoint.

Against the background of the prosperous development of the NeuroIS field during the past years, some time ago we developed the idea writing a book whose objective is to provide an "entry point" for NeuroIS newcomers. In essence, we thought it might be useful to have a book in which the major concepts, topics, methods, and tools of the NeuroIS field are documented in an easily accessible way. Based on such a book, researchers—from students to senior scholars—should be able to get an overview of the field in order to make an informed decision about whether and, if so how, they would like to get engaged in NeuroIS research. In this spirit, it is hoped that this book motivates many researchers, as well as practitioners with an academic background, to plan and execute NeuroIS research. It will be rewarding to see what insight future NeuroIS research will reveal into the development, use, and impact of information and communication technologies.

We would like to thank all supporters and members of the NeuroIS community, who have contributed in different roles to the development of the field, as well as all former participants of the *Gmunden Retreat on NeuroIS*. The contributions of these people shaped the field and hence also affect the future development of NeuroIS. In particular, we thank Adriane B. Randolph and Jan vom Brocke for their valuable support. Importantly, we are indebted to Fred D. Davis for his visionary ideas and support. We also thank colleagues and staff from Tech[3]Lab at HEC Montréal for their support in this project. Importantly, we thank Martin Reuter and Christian Montag, co-editors of the Springer series "Studies in Neuroscience, Psychology, and Behavioral Economics", who invited us to publish this NeuroIS book in their series. Also, we thank Marlene Platzer who has drawn most of the pictures in this book, the photographer David Brieugne, research assistant Emma Campbell, as well as the proof-readers, Deborah Nester and Sarah Grafinger. Moreover, we thank HEC Montréal for a grant received to support the preparation of this book, and we appreciate the support of the University of Linz, International Office, and the

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Last but not least, we thank our families for supporting our scientific endeavors, with all the positive and negative side effects coming with them. Finally, please note that color versions of several figures in this volume are available in the electronic version of this book.

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