

Preface

This book is an outgrowth of the 2nd Workshop on Eye Gaze in Intelligent Human Machine Interaction at the 16th International Conference on Intelligent User Interfaces (IUI 2011), which was held at Palo Alto, California, USA on February 13, 2011. The first eye-gaze workshop was held at IUI 2010 in Hong Kong, and was organized by Dr. Elisabeth André and Dr. Joyce Y. Chai. Following the first workshop, this workshop has continued to explore this important topic and covers a wider range of topics, including eye-tracking technologies, analyses of human eye-gaze behaviors, multimodal interpretation, gaze-based interactive IUIs, and presenting gaze behaviors in humanoid interfaces. Moreover, the workshop aimed at creating a network of researchers with different backgrounds, such as human sensing, intelligent user interface, multimodal processing, and communication science, who are interested in exploring how attentional information can be applied to novel intelligent user interfaces.

The research areas and questions targeted in the workshop are as follows:

- Technologies for sensing human attentional behaviors in IUI
- Interpreting attentional behaviors as communicative signals in IUI
- Gaze model for generating eye-gaze behaviors by conversational humanoids
- Analysis of human attentional behaviors
- Evaluation of gaze-based IUI

From the workshop presentation, we carefully selected papers that significantly contribute to the theme of this book and asked the authors to extend their original work presented at the workshop. In addition, we have invited two papers so as to cover a wider range of topics for attention-aware interfaces: Chap. 5 by Marc-Antoine Nussli, Patrick Jermann, Mirweis Sangin, and Pierre Dillenbourg, and Chap. 10 by Jens Edlund, Samer Al Moubayed, and Jonas Beskow.

The collected papers are organized into three sections:

Part I: Gaze in Human Communication

Part II: Gaze-Based Cognitive and Communicative Status Estimation

Part III: Gaze Awareness in HCI

Part I focuses on analyzing human eye gaze behaviors to reveal the characteristics of human communication and cognition. Part II addresses the estimation and prediction of the cognitive state of the users using gaze information. Finally, Part III presents novel gaze-aware interfaces that integrate eye-trackers as a system component. This part provides information on the direction of future human-computer interaction and discusses issues to be addressed in designing gaze-aware interactive interfaces.

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