Preface

From tiny fitness trackers to huge industrial robots, we are interacting today with devices in shapes, sizes, and capabilities that would have been hard to imagine when the traditional graphical user interface (GUI) first became popular in the 1980s. As we move further and further away from the classic desktop paradigm, with input limited to mouse and keyboard, and a large screen as the only output modality, it is becoming increasingly apparent that the decades-old GUI interface is a poor fit for today's computer-human interactions. While the growth of touch interfaces has been especially dramatic, we are now also starting to see applications that make use of many other forms of interaction, including voice, handwriting, emotion recognition, natural language understanding, and object recognition.

As these forms of interaction (modalities) are combined into systems, the importance of having standard ways for them to communicate with each other and with application logic is apparent. The sheer variety and complexity of multimodal technologies makes it impractical for most implementers to handle the full range of possible modalities (current and future) with proprietary APIs.

To address this need, the World Wide Web Consortium (W3C) has developed a comprehensive set of standards for multimodal interaction which are well-suited as the basis of interoperable multimodal applications. However, most of the information about these standards is currently available only in the formal standards documents, conference presentations, and a few academic journal papers. All of these can be hard to find and are not very accessible to most technologists. In addition, papers on applications that use the standards are similarly scattered among many different resources.

This book will address this gap with clearly presented overviews of the full suite of W3C multimodal standards, as well as some relevant standards from other standards bodies. In addition, to illustrate the standards in use, it also includes

descriptions of implemented platforms and case studies of applications that use the standards. Finally, a future directions section discusses new ideas for other standards as well as for new applications.

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