Eye Tracking: A comprehensive guide to methods and measures

By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer

Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer

We make 3-5 eye movements per second, and these movements are crucial in helping us deal with the vast amounts of information we encounter in our everyday lives. In recent years, thanks to the development of eye tracking technology, there has been a growing interest in monitoring and measuring these movements, with a view to understanding how we attend to and process the visual information we encounter

Eye tracking as a research tool is now more accessible than ever, and is growing in popularity amongst researchers from a whole host of different disciplines. Usability analysts, sports scientists, cognitive psychologists, reading researchers, psycholinguists, neurophysiologists, electrical engineers, and others, all have a vested interest in eye tracking for different reasons. The ability to record eye-movements has helped advance our science and led to technological innovations. However, the
growth of eye tracking in recent years has also presented a variety of challenges - in particular the issue of how to design an eye-tracking experiment, and how to analyse the data.

This book is a much needed comprehensive handbook of eye tracking methodology. It describes how to evaluate and acquire an eye-tracker, how to plan and design an eye tracking study, and how to record and analyse eye-movement data. Besides technical details and theory, the heart of this book revolves around practicality - how raw data samples are converted into fixations and saccades using event detection algorithms, how the different representations of eye movement data are calculated using
AOIs, heat maps and scanpaths, and how all the measures of eye movements relate to these processes.

Part I presents the technology and skills needed to perform high-quality research with eye-trackers.
Part II covers the predominant methods applied to the data which eye-trackers record. These include the parsing of raw sample data into oculomotor events, and how to calculate other representations of eye movements such as heat maps and

transition matrices.

Part III gives a comprehensive outline of the measures which can be calculated using the events and representations described

in Part II. This is a taxonomy of the measures available to eye-tracking researchers, sorted by type of movement of the eyes and type of analysis.

For anyone in the sciences considering conducting research involving eye-tracking, this book will be an essential reference work.

Download Eye Tracking: A comprehensive guide to methods and ...pdf

Read Online Eye Tracking: A comprehensive guide to methods a ...pdf

Eye Tracking: A comprehensive guide to methods and measures

By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer

Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer

We make 3-5 eye movements per second, and these movements are crucial in helping us deal with the vast amounts of information we encounter in our everyday lives. In recent years, thanks to the development of eye tracking technology, there has been a growing interest in monitoring and measuring these movements, with a view to understanding how we attend to and process the visual information we encounter

Eye tracking as a research tool is now more accessible than ever, and is growing in popularity amongst researchers from a whole host of different disciplines. Usability analysts, sports scientists, cognitive psychologists, reading researchers, psycholinguists, neurophysiologists, electrical engineers, and others, all have a vested interest in eye tracking for different reasons. The ability to record eye-movements has helped advance our science and led to technological innovations. However, the
growth of eye tracking in recent years has also presented a variety of challenges - in particular the issue of how to design an eye-tracking experiment, and how to analyse the data.

This book is a much needed comprehensive handbook of eye tracking methodology. It describes how to evaluate and acquire an eye-tracker, how to plan and design an eye tracking study, and how to record and analyse eye-movement data. Besides technical details and theory, the heart of this book revolves around practicality - how raw data samples are converted into fixations and saccades using event detection algorithms, how the different representations of eye movement data are calculated using
AOIs, heat maps and scanpaths, and how all the measures of eye movements relate to these processes.

Part I presents the technology and skills needed to perform high-quality research with eye-trackers.
Part II covers the predominant methods applied to the data which eye-trackers record. These include the parsing of raw sample data into oculomotor events, and how to calculate other representations of eye movements such as heat maps and transition matrices.
Part III gives a comprehensive outline of the measures which can be calculated using the events and representations described
in Part II. This is a taxonomy of the measures available to eye-tracking researchers, sorted by type of movement of the eyes and type of analysis.

For anyone in the sciences considering conducting research involving eye-tracking, this book will be an essential reference work.

Bibliography

- Rank: #487358 in eBooks
- Published on: 2011-09-22
- Released on: 2011-09-22
- Format: Kindle eBook

⬇ **Download** Eye Tracking: A comprehensive guide to methods and ...pdf

🗎 **Read Online** Eye Tracking: A comprehensive guide to methods a ...pdf

Download and Read Free Online Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer

Editorial Review

Review

"This practical book discusses both theoretical concepts and experimental design, showing how data samples can be converted into meaningful representations (i.e. fixations and saccades) using various algorithms. This is a reference that should be in the library of researchers in this field." -- DOODY'S

About the Author

Kenneth Holmqvist, *The Humanities Laboratory, Lund, Sweden,*Marcus Nystrom, *The Humanities Laboratory, Lund, Sweden,*Richard Andersson, *The Humanities Laboratory, Lund, Sweden,*Richard Dewhurst, *The Humanities Laboratory, Lund, Sweden,*Halszka Jarodzka, *Centre for Learning Sciences and Technologies, Heerlen, The Netherlands,*Joost van de Weijer, *The Humanities Laboratory, Lund, Sweden*

Kenneth Holmqvist is an associate professor in Cognitive Science at Lund university, where he founded the eye-tracking laboratory in 1995, which later grew into the large Humanities Laboratory. He has worked in a large variety of eye-tracking-based research stretching from reading research and scene perception, over to newspaper reading, advertisement studies and gesture recognition in face-to-face interaction. Kenneth also has expertise in eye tracking used in applied areas, including decision making in supermarkets and research on safety in car driving and air traffic control. In 2000, Kenneth initiated regular master courses in eye-tracking methodology. In 2006, he founded the Scandinavian Conference on Applied Eye-tracking, and in 2008, the international LETA training courses in eye-tracking methodology. Kenneth is the initiator and main author of this book.

Marcus Nystrom received his PhD in Information Theory from the department of Electrical and Information Technology at Lund University, Sweden, in 2008, working with foveated video compression and scene perception. He currently works in the Humanities Laboratory at Lund University. His research interests span eye-tracking methodology in general and analysis of eye-tracking data in particular.

Richard Andersson is a PhD student in cognitive science and technician at the Lund University Humanities Laboratory. He teaches eye-tracking methodology and provides users with help during the formulation, building and analysis stage of the eye-tracking experiments.

Richard Dewhurst is presently a post-doctoral researcher at Lund University Humanities Laboratory, funded by the Swedish Research Council. He completed his PhD on training eye movements at the University of Nottingham in 2009, as part of the Cognition and Language research group. Prior to this he also obtained an MSc in psychological research methods from the University of Nottingham, and a BSc in psychology from the University of Wales, Bangor. His research focuses on attentional mechanisms and eye movements. More

specifically how eye movement control changes with learning and experience, and how to devise and implement procedures for improving visual skills through training eye movements.

Halszka Jarodzka works as an assistant professor at the Centre for Learning Sciences and Technologies at the Open University of the Netherlands. She holds a Master degree in Psychology and a PhD from the Knowledge Media Research Center, both at the Eberhard-Karls University of Tuebingen, Germany. Halszka's research focuses on the use of eye-tracking and verbal protocols in educational psychology, in particular investigating characteristics of visual expertise with expertise difference studies as well as teaching of biological classi?cation or medical diagnosis based on visual observation and interpretation of dynamic scenes by means of eye movement modelling examples.

Joost van de Weijer defended his PhD thesis at the Max Planck Institute for Psycholinguistics in 1998. Thereafter he worked as a postdoc researcher at Johns Hopkins University, Baltimore, and at the Department of Linguistics and Phonetics in Lund. Currently, he is affiliated with the Centre for Languages and Literature and at the Humanities Laboratory, both at Lund University.

Users Review

From reader reviews:

Destiny Hunt:

Have you spare time to get a day? What do you do when you have more or little spare time? That's why, you can choose the suitable activity intended for spend your time. Any person spent their spare time to take a move, shopping, or went to the particular Mall. How about open or maybe read a book called Eye Tracking: A comprehensive guide to methods and measures? Maybe it is for being best activity for you. You understand beside you can spend your time using your favorite's book, you can wiser than before. Do you agree with the opinion or you have various other opinion?

John Ferguson:

This Eye Tracking: A comprehensive guide to methods and measures tend to be reliable for you who want to be considered a successful person, why. The key reason why of this Eye Tracking: A comprehensive guide to methods and measures can be on the list of great books you must have is definitely giving you more than just simple studying food but feed anyone with information that perhaps will shock your previous knowledge. This book is usually handy, you can bring it just about everywhere and whenever your conditions in the e-book and printed kinds. Beside that this Eye Tracking: A comprehensive guide to methods and measures giving you an enormous of experience like rich vocabulary, giving you tryout of critical thinking that we realize it useful in your day task. So , let's have it and revel in reading.

Johnny Hoffman:

As we know that book is significant thing to add our information for everything. By a guide we can know everything we want. A book is a list of written, printed, illustrated as well as blank sheet. Every year was exactly added. This publication Eye Tracking: A comprehensive guide to methods and measures was filled

regarding science. Spend your spare time to add your knowledge about your research competence. Some people has various feel when they reading the book. If you know how big good thing about a book, you can experience enjoy to read a publication. In the modern era like right now, many ways to get book which you wanted.

Jessica Harris:

Some people said that they feel weary when they reading a reserve. They are directly felt the item when they get a half parts of the book. You can choose the book Eye Tracking: A comprehensive guide to methods and measures to make your personal reading is interesting. Your own skill of reading skill is developing when you just like reading. Try to choose very simple book to make you enjoy you just read it and mingle the idea about book and reading especially. It is to be very first opinion for you to like to wide open a book and read it. Beside that the e-book Eye Tracking: A comprehensive guide to methods and measures can to be your new friend when you're experience alone and confuse using what must you're doing of this time.

Download and Read Online Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer #6HJ2DS1EXCZ

Read Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer for online ebook

Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer books to read online.

Online Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer ebook PDF download

Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer Doc

Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer Mobipocket

Eye Tracking: A comprehensive guide to methods and measures By Kenneth Holmqvist, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, Joost van de Weijer EPub