

# A Practical Guide to Brain-Computer Interfacing with BCI2000: General-Purpose Software for Brain-Computer Interface Research, Data Acquisition, ... (Human-Computer Interaction Series)

By Gerwin Schalk, Jürgen Mellinger





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What Is BCI2000? BCI2000 is a general-purpose software platform for brain—computer interface (BCI) research. It can also be used for a wide variety of data acquisition, stimulus p- sentation, and brain monitoring applications. BCI2000 has been in development since 2000 in a project led by the Brain—Computer Interface R&D Program at the Wadsworth Center of the New York State Department of Health in Albany, New York, USA, with substantial contributions by the Institute of Medical Psychology and Behavioral Neurobiology at the University of Tübingen, Germany. In addition, many laboratories around the world, most notably the BrainLab at Georgia State University in Atlanta, Georgia, and Fondazione Santa Lucia in Rome, Italy, have also played an important role in the project's development. Mission The mission of the BCI2000 project is to facilitate research and the development of applications in all areas that depend on real-time acquisition, processing, and feedback of biosignals. Vision Our vision is that BCI2000 will become a widely used software tool for diverse areas of research and development.



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## **Editorial Review**

From the Back Cover

This practical guide to successful Brain-Computer Interface (BCI) experiments, uses the general-purpose software platform BCI2000. It provides comprehensive introductory and intermediate concepts of all relevant aspects pertaining to common BCI experiments.

Opening with a general introduction to the principles of BCI operation, brain signal acquisition using different types of sensors, BCI signal processing (including common feature extraction and feature translation methods), and device output, this general introduction to BCI research is followed by an introduction to the BCI2000 software platform, including a step-by step tour and step-by-step tutorials for using BCI2000 with sensorimotor rhythms and P300 evoked potentials. Advanced concepts are discussed and a programming reference and exercises included. There is a section for frequently asked questions and technical references.

Graduate students and postdoctoral associates getting started with BCI research and/or the use of BCI2000 will find this book very valuable. The tutorials and exercises will also prove useful for further reading and for lab assignments in courses on BCI research.

About the Author

Gerwin Schalk has a Ph.D in Computer and Systems Engineering and project-managed BCI2000.

Jürgen Mellinger is a lead developed in the BCI2000 project.

# **Users Review**

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