



Curriculum Vitae Professor Dr Rainer Goebel

Name: Rainer Goebel
Born: 17 January 1964

Research Priorities: Psychology, neurosciences, functional MRI, analysis software, brain-computer-interfaces (BCI), neuronal networks

Rainer Goebel is a German psychologist and neuroscientist, whose aim is a deeper understanding of the human brain. Amongst other things, the scientist and his team investigate the relationship between visual-cognitive processes and their underlying processes within the brain. To identify the basis of mental processes, he primarily uses high-resolution functional magnetic resonance imaging (fMRI).

Academic and Professional Career

- since 2020 Vice-Dean (Research), Faculty of Psychology and Neuroscience (FPN), Maastricht University, Maastricht, Netherlands
- 2016 - 2020 Chair, Department of Cognitive Neuroscience, Faculty of Psychology and Neuroscience (FPN), Maastricht University, Maastricht, Netherlands
- 2008 - 2017 Head, Research Group “Neuroimaging and Neuromodelling”, Netherlands Institute for Neuroscience, Royal Netherlands Academy of Arts and Sciences, Netherlands
- since 2005 Founding Director, Maastricht Brain Imaging Center (M-BIC), Maastricht, Netherlands
- 2001 - 2008 Research Fellow and Member, Board of Governors, F.C. Donders Centre for Cognitive Neuroimaging, Nijmegen, Netherlands
- since 2000 Founder and CEO, Brain Innovation B.V., Maastricht, Netherlands
- since 2000 Professor of Cognitive Neuroscience, FPN, Maastricht University, Maastricht, Netherlands

- 1994 - 1999 Postdoctoral Fellow, Max Planck Institute for Brain Research, Department Neurophysiology, Frankfurt am Main, Germany
- 1990 - 1994 PhD in Cognitive Psychology, Neurobiology and Computer Science, Technische Universität (TU) Braunschweig, Braunschweig, Germany
- 1988 Diploma in Psychology, Philipps-Universität Marburg, Marburg, Germany
- 1983 - 1988 Studies in Psychology and Computer Science, Philipps-Universität Marburg, Marburg, Germany

Functions in Scientific Societies and Committees

- 2020 - 2023 Member, Science and Infrastructure Board (SIB), Human Brain Project (HBP), European Commission
- 2017 - 2023 Chair, External Advisory, Wellcome Trust Centre for Integrative Neuroimaging, London, UK
- 2019 Chair, 4th International real-time functional imaging and neurofeedback Conference, Maastricht, Netherlands
- since 2015 Member, Organizational Committee, Conference “Behind and Beyond the Brain”, Coronado, Portugal
- 2008 Chair, Organization for Human Brain Mapping, Minneapolis, USA

Project Coordination, Membership in Collaborative Research Projects

- 2023 - 2032 Member, Grant „Dutch 14 Tesla MRI initiative in Medical Science (DYNAMIC)”, National Roadmap Large Scale Infrastructures, Dutch Research Council (NOW), Netherlands
- 2020 - 2024 Member, Grant „European School of Network Neuroscience (euSNN)”, ITN Network, European Commission
- 2020 - 2023 Member, Specific Grant Agreement 3 (SGA3), Human Brain Project (HBP), European Commission
- 2018 - 2023 Principal Investigator, Grant „Neurofeedback for Performance”, Special Forces/Dutch Police, Netherlands
- 2018 - 2019 Member, Grant “Reading the mind’s eye at 7 Tesla – A fMRI-based communication brain-computer interface for severely motor-impaired patients (MindsEyeBCI)”, European Research Council (ERC)
- 2018 - 2020 Member, Specific Grant Agreement 2 (SGA2), HBP, European Commission

- 2017 - 2021 Member, Project "Mapping of human visual cortex", Grant "Neuronal Stimulation for Recovery of function (NESTOR)", NWO, Netherlands
- 2016 - 2018 Member, Specific Grant Agreement 1 (SGA2), HBP, European Commission
- 2014 - 2020 Director, Co-Design Project "Visual-Motoric Integration", HBP, European Commission
- 2013 - 2017 Member, Grant "Taking imaging into the therapeutic domain: Self-regulation of brain systems for mental disorders (BRAINTRAIN)", 7th Frameworkprogramme (FRP), European Commission
- 2013 - 2017 Member, Grant "IMAgING GEnetics for MENTAl Disorders (IMAGEMEND)", 7. FRP, European Commission
- 2012 - 2017 Director, Project "Advanced multi-channel RF-coils for sub-millimetre functional brain imaging on ultrahigh field magnetic resonance (MR) scanners", NWO, Netherlands
- 2012 - 2015 Member, Marie Curie Initial Training Networks "Adaptive Brain Computations (ABC)", 7th FRP, European Commission
- 2011 - 2016 Principal Investigator, Project "Cracking the columnar-level code in the visual hierarchy: Ultra high-field functional MRI, neuro-cognitive modelling and high-resolution brain-computer interfaces (COLUMNARCODECRACKING)", 7th FRP, European Commission
- 2010 - 2013 Member, Grant "Deployment of Brain-Computer Interfaces for the Detection of Consciousness in Non-Responsive Patients (DECODER)", 7th FRP, European Commission
- 2007 - 2013 Member, Workpackage "fMRI-based neurofeedback", Grant SmartMix program "BrainGain", Netherlands Ministry of Economic Affairs and Netherlands Ministry of Education, Culture and Science, Netherlands
- Director, Workpackage 3 "Adaptive networks for cognitive architectures: from advanced learning to neurorobotics and neuromorphic applications", HBP, European Commission

Honours and Awarded Memberships

- since 2017 Member, German National Academy of Sciences, Germany
- since 2014 Member, Royal Netherlands Academy of Arts and Sciences, Netherlands
- 2021 - 2022 Fellow, Hamburg Institute for Advanced Study, Hamburg, Germany
- 1997 - 1998 Fellow, Wissenschaftskolleg zu Berlin, Berlin, Germany

- 1994 Heinz Billing Prize, Heinz Billing Foundation for the Advancement of Scientific Computing, Max Planck Society, Munich, Germany
- 1993 Heinz Maier-Leibnitz Prize, German Research Council (DFG)

Research Priorities

Rainer Goebel is a German psychologist and neuroscientist, whose aim is a deeper understanding of the human brain. Amongst other things, the scientist and his team investigate the relationship between visual-cognitive processes and their underlying processes within the brain. To identify the basis of mental processes, he primarily uses high-resolution functional magnetic resonance imaging (fMRI).

Rainer Goebel wants to find out how the interaction of so-called cortical columns and certain layers creates mental processes in the brain. Cortical Columns consists of vertically arranged rows of connected neural cells that together form a neural circuit. They are considered a central building block of the cerebral cortex which is responsible for cerebral functions of a higher order. Here, he focuses not only on fundamental science but also considers the clinical application to neurological-psychiatric disorders such as Parkinson or depression. He succeeded, for example, in developing a neurofeedback-therapy (certified medical product) for people with depression, where patients learn to consciously influence their emotional system by activating emotionally important memories.

Furthermore, Rainer Goebel develops methods to measure the value of mental exercises by considering their changes to the brain. Here, his focus is on the changing metabolic patterns in the tissue and the integrity of fibre bundles. The hope is to not only enable a more differentiated diagnosis, but also to identify individuals who respond particularly well to cognitive training. He has extended this research beyond patient studies. He currently develops, for example, a fMRI neurofeedback training program for recruits of the special forces of the Dutch police.

Rainer Goebel significantly influenced three areas of science: the imaging of cognitive processes, the analysis of neuroimaging methods, as well as the development of haemo-dynamic brain-computer-interfaces (BCIs). With the help of ultra-high field fMRI scanners of 7 and 9.4 Tesla, he pushes back the technical boundary of spatial resolution and thereby develops new methods to gain ever-refined windows into the neuronal basis of the human mind. His software-modules enable, for example, motorically impaired patients the spelling of single letters, and patients with depression to treat themselves using fMRI neurofeedback.