



Press Release

Two new special fields of research for the University of Tübingen

New research networks will study the algorithms of vision and the transportation of pollutants in the environment from January onwards

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The University of Tübingen is acquiring two collaborative research centres (CRC): In the “Robust Vision” CRC, neuroscience and machine learning researchers will investigate the principles of biological and machine vision starting January 2017 onwards. The CAMPOS CRC is also being launched in January 2017; environmental geoscientists will study comprehensively how pollutants behave in the environment. Both centres will be supported by the German Research Foundation (DFG) for four years and can be extended by two further periods of four years dependent on successful intermediate evaluations.

The CRC on “Robust Vision” is a close collaboration between scientists from the University and the Max Planck Institute for Intelligent Systems. Human visual perception is amazingly robust: Even in highly variable environments, we are able to make reliable inferences about the spatial arrangement of the world from limited visual information. “To achieve this, our brain must perform complex computations,” says Professor Matthias Bethge, Head of the Bernstein Centre for Computational Neuroscience at the University of Tübingen (Centre for Integrative Neuroscience/Institute for Theoretical Physics) and spokesperson of the CRC. Artificial vision systems, in turn – as used, for example, in self-driving cars – are making steep progress in reproducing the visual skills of humans. The scientists of this new collaborative research centre will combine neuroscience and machine vision approaches to achieve a better understanding of the principles and algorithms that enable robust visual inference both in humans and machines.

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In the “CAMPOS” collaborative research center (Catchments as Reactors: Metabolism of Pollutants on the Landscape Scale), scientists from the environmental geosciences at the University of Tübingen will examine the behavior of pollutants in surface water, groundwater and the soil using new approaches. Aim is to provide more reliable forecasts about developments in water and soil quality. In contrast to earlier laboratory based studies focus is on the processes taking place in nature. For example, pollutants like pesticides and other organic compounds, which rapidly break down under laboratory conditions, can often be found in the soil and groundwater for an unexpectedly long period of time.

Biologists, chemists, geologists and engineers will work together in the multi-disciplinary research network. “Using extensive field studies, they will survey the bio/geochemical behavior of pollutants in water catchments like the Ammer Valley in Baden-Württemberg,” says spokesperson Peter Grathwohl, Professor of Hydrogeochemistry and Vice-President for Research at the University of Tübingen. New analysis and measurement technologies allow meanwhile to monitor processes and compounds in nature in unprecedented resolution. Field results will be used in computer models for more accurate simulations of long term trends in water quality. The Universities of Stuttgart and Hohenheim and the German Research Centre for Environmental Health in Munich and the Helmholtz Centre for Environmental Research in Leipzig are also involved in this special research project.

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