HEINRICH HEINE
UNIVERSITÄT DÜSSELDORF

**Der Lehrstuhl für Theoretische Philosophie
lädt herzlich ein zum Vortrag von**

Prof. Dr. Clark Glymour
(Carnegie Mellon University Pittsburgh)

**Donnerstag, 13.06.2013
18:30 – 20:00 Uhr**

Gebäude 23.21 Raum Hs 3F

Keynote Lecture:
Brain Troubles

Abstract

The brain is a natural device with parts, sub-parts, and sub-sub-parts influencing one another in various combinations and degrees to produce thought, emotion and action. It is a device we cannot experiment upon in any direct way except in the occasions of neurosurgery, where discovery is not forbidden but systematic experimentation is. The development in the latter half of the 20th century of a variety of physical methods for indirect measurements of physiological processes in the brain opened the prospect of inferring aspects of brain function without penetrating human skulls. Until about a decade ago, these measurement methods were used almost exclusively to try to identify regions of the brain whose activity is characteristic of particular tasks or anomalies, without attempting to infer how in the course of a task various regions of the brain influence one another. In the last ten years the ambition has extended to attempts to determine some of the relevant causal connections. Challenging a long history of statistical shibboleths, these efforts push on the boundaries of what is possible with available computational and statistical methods. After introducing the background, this lecture will discuss some of the current statistical and computational methods that attempt to infer causal connections among brain regions from indirect physiological measurements—chiefly fMRI—how they are tested, their limitations, their sensitivities to the processing of data, and open challenges.

Speaker

Clark Glymour is a key figure in philosophy of science since decades. In particular, his philosophical contributions to causation and (probabilistic) modeling of scientific inquiry shaped the discussion in the respective fields. A key element is thereby his theory of causal nets, as developed in a series of papers and a book, together with Peter Spirtes and Richard Scheines. This was the birth of a new research program focusing on the search for algorithms for uncovering causal structures on the basis of empirical data and for generating predictions by means of causal models.

Studierende und andere Interessierte sind herzlich willkommen