Biomedical Engineering Department Seminar

The Brain's' and Innovative Medical Technology

2:00 PM Tuesday, September 2, 2014
Seminar Room in Engineering Floor (2nd Floor)
Dr. Mehmet Eylem Kirlangic

Biomedical engineering has long gained its entity as an engineering discipline at the interface between engineering and, biological and medical sciences. Biomedical engineers increasingly shape medical innovations, not only in diagnostics, but also in therapeutic interventions by novel devices. Automated computer systems are developed by biomedical engineers to assist clinical assessment and increase the objectivity in therapy evaluation. Hence, medical engineers play an important role in bridging basic research with the clinical research. In this talk, I will give examples of development of innovative medical technology, in which I focus on the central nervous system and its disorders, such as epilepsy, Parkinson's disease and spino-cerebellar ataxie. Moving from functional to structural brain research with an example on the rat brain, I will illustrate various aspects of the input of engineering to the medical research. Finally, I will discuss core ethical issues in the development of innovative medical devices.

Dr. Mehmet Eylem Kirlangic received his PhD degree in Biomedical Engineering from the Technische Universitaet Ilmenau, Germany, as a scholarship holder of the German Academic Exchange Service (DAAD) in 2005. His BS and MS degrees are in Electrical and Electronics Engineering and Biomedical Engineering of Bogazici University, respectively. He was with the Department of Stereotaxic and Functional Neurosurgery at the University Clinic Cologne, and thereafter, with the Department of Psychiatry and Psychotherapy at the University Clinic RWTH Aachen as a post-doc researcher. Dr. Kirlangic is currently with the Institute of Neuroscience and Medicine – Structural and Functional Organisation of the Brain (INM-1) at the Research Center Juelich in Germany. He is mainly working on mapping the rat brain at the molecular level. His research interests include biomedical signal and image processing, nonlinear dynamics and fractal modeling, synergetics, and innovative medical technology management. He is a member of the German Electrical Engineers Association (VDE) and of the IEEE – Engineering in Biology and Medicine Society.