

## Workshop Proposal for MED 2007

### Biorobotics: Biological Models and Medical Applications

Alfredo Weitzenfeld and Rajiv Dubey

**Workshop length:** half or full day

**Abstract:**

Biorobotics often refers to the study of biological organisms as basis for the design of artificial robotic systems. Biorobotics has served as a way to provide linkage between biology and robotics in trying to understand scientific and engineering principles guiding the design and fabrication of novel devices in areas such as medicine that include diagnosis, surgery, rehabilitation and prosthetics. Other developments include models and applications taking inspiration from animal biomechanics, behavior and underlying brain structures leading to new approaches to learning and adaptation.

**Workshop format:**

We expect to have a number of oral presentations from submitted papers and possibly invited speakers as well.

**Call for Contributions:**

We invite researchers to submit papers describing novel biorobotics models and application devices. Accepted papers will be published in the workshop proceedings and speakers will be invited to present their work during the workshop. Interested participants should send a PDF file to Alfredo Weitzenfeld [[alfredo@itam.mx](mailto:alfredo@itam.mx)] or Rajiv Dubey [[dubey@eng.usf.edu](mailto:dubey@eng.usf.edu)]. Selected papers will be considered for invitation to a special issue of the Journal of Intelligent and Robotics Systems.

**Audience:**

The workshop provides an opportunity for researchers in different subareas of biorobotics to discuss common interests and developments.

**Organizers:**

**Alfredo Weitzenfeld** is the director of the Robotics and Biorobotics (CANNES) laboratories at ITAM in Mexico. Prof. Weitzenfeld is the main designer of the Neural Simulation Language NSL, the Abstract Schema Language ASL and the MIRO robotics architecture. He has been involved in the design of a number of robotic architectures inspired in biological studies of Frogs and Toads, Praying Mantis, Rats and Monkeys. He is the main author of “The Neural Simulation Language: A System for Brain Modeling” (co-authors M. Arbib and A. Alexander) published by MIT Press in 2002. He is currently on sabbatical at USF.

**Rajiv Dubey** is Professor and Chair of Department of Mechanical Engineering and Director of the Center for Rehabilitation Engineering and Technology at University of South Florida. He has served as Associate Editor for the IEEE Transactions on Robotics and Automation and as Chair of the Video Proceedings for the IEEE International Conference on Robotics and Automation (several times). His current research is focused on rehabilitation robotics and telemanipulation systems; haptic interfaces and assistive devices for persons with disabilities; and prosthetics and orthotics.