

## **IEEE Miami Section Invited Seminar Announcement**

### ***“User’s Intent Control of Robotic Prosthesis”***

**Speaker:** Dr. Ou Bai

**Date:** Nov 30, 2021

**Lecture:** 1:00 pm, EC Conference Room, Florida International University (FIU), EC Campus, 10555 W Flagler St Miami, Florida 33174

**Zoom Link:**

<https://fiu.zoom.us/j/94681118042?pwd=ZGVnbDRBS2lwRndFSHFST0pK3hKZz09>

**Abstract:**

More than one million people are living with lower-limb amputation in the United States. The user’s control of a robotic, powered prosthesis will promote a natural gait and minimize an amputee’s energy expenditure in prosthetics use. It is challenging how the robotic prosthesis can understand user’s intent reliably so that the robot may provide adaptive support to the amputees. We propose to recognize user’s voluntary intent from the scalp electroencephalography (EEG) signal. However, one key challenge is that the EEG signal is highly complex and nonstationary, making the recognition unreliable. To breakthrough this technical barrier, we have designed and developed effective brain-computer interface integrated with advanced signal processing and machine learning technology as well as biomechanical and physiological sensor wearables. Our preliminary data demonstrates that the developed hardware and algorithms may support a reliable recognition of user’s intent when amputees change terrain and/or locomotion.



**Speaker’s Bio**

Dr. Bai received his B.S. degree in Electronic Engineering from Tsinghua University, China and received his Ph.D. Degree in Advanced Systems Control Engineering from Saga University, Japan. Dr. Bai received post-doctoral research training in the National Institutes of Health. Dr. Bai currently serves as the Director of Human Cyber-Physical Systems Laboratory and Associate Professor in the Department of Electrical and Computer Engineering, Florida International University.

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