



***“Intelligent Intensive Care Unit (i-ICU):  
Transforming Reactive to Proactive Care at UCLA  
Neurocritical Care Unit.”***

**Xiao Hu, Ph.D.**  
*Assistant Professor*  
*Department of Neurosurgery*  
*University of California, Los Angeles*

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**ABSTRACT:**

Intensive care is one of the medical practice areas where clinical decision depends on the integration of a vast amount of densely sampled medical data of heterogeneous nature. As one of its primary missions, the Neural Systems and Dynamics Lab (NSDL) at the department of Neurosurgery started addressing this information overload issue in critical care by building informatics infrastructures, developing information processing algorithms, and translating information processing tools to the bedside since its establishment in 2006. This talk contains three parts: 1) a high level introduction of the concept and elements of intelligent intensive care; 2) a brief introduction of our current informatics infrastructure at the Neurocritical Care Unit in the Ronald Reagan Medical Center; 3) an example illustrating the application of novel morphological analysis of intracranial pressure pulse, automated optimal feature selection, and machine learning techniques to forecast acute elevation of intracranial pressure.

**BIOGRAPHY:**

**Professor Xiao Hu**, received the B.S. and M.S. from the University of Electronic Science and Technology of China in 1996 and 1999, respectively. He received a Ph.D. degree in Biomedical Engineering from the University of California, Los Angeles in 2004. He then joined the division of neurosurgery at the UCLA Medical Center as an assistant researcher and as an assistant professor in December 2006. He has a broad research interest in mathematical modeling of physiological systems, biomedical signal processing, software development, and translational biomedical informatics. He is currently the director of the Neural Systems and Dynamics Laboratory (NSDL) and principal investigator of three NIH R21 and one RO1 research projects.