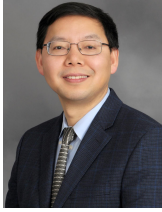


# ***Biomedical Informatics Grand Rounds***

Wednesday, Sept. 8, 2021 3:00 pm – 4:00 pm

## **Big Data and AI-Driven Opioid Epidemic Research**



*Fusheng Wang, PhD  
Associate Professor,  
Department of Biomedical Informatics and Computer Science,  
Stony Brook University  
Stony Brook, NY*

### **Remote Access**

**Join Zoom Meeting:** <https://stonybrook.zoom.us/j/95617197636?pwd=KytzZ2pVRG9SZGpKZUtpNXJISjNjZz09>

**Meeting ID:** 956 1719 7636 **Passcode:** 924293

**Bio:** Dr. Fusheng Wang is an Associate Professor at the Department of Biomedical Informatics and the Department of Computer Science at Stony Brook University. His research interests crosscut biomedical informatics and computer science, including big data management and analytics, GIS, AI in Healthcare, medical imaging informatics, population health, and opioid epidemic research. He has developed multiple big spatial data management systems for effectively managing, querying, and mining multiple dimensional data at extreme scale, including 2D and 3D data. He has applied such methods for multiple biomedical applications, including public health and computational digital pathology. He developed various machine learning/deep learning-based models on opioid overdose and opioid use disorder risk prediction, understanding drug-drug interaction, and discovering novel opioid antagonists. He has published more than 160 peer-reviewed manuscripts in biomedical informatics and computer science.

He received his Ph.D. in Computer Science from the University of California, Los Angeles, and M.S. and B.S. in Engineering Physics from Tsinghua University. Prior to joining Stony Brook University, he was an Assistant Professor at Emory University. He was a research scientist at Siemens Corporate Research (Princeton, NJ) before joining Emory University.

**Abstract:** The United States is experiencing an opioid epidemic. In recent years, there were more than 10 million opioid misusers aged 12 years or older annually. The opioid epidemic is worsened by the COVID-19 pandemic, leading to a historical record of 93,000 overdose deaths in 2020. In this talk, we aim to answer the following questions: 1) Can we predict opioid overdose and opioid use disorder risks of patients in the future based on EHR history for improving clinical decision support? 2) Which regions or communities have the most serious opioid problems for potential targeted interventions and optimized resource management? 3) What are the opinions of the public, the emotions of the opioid users, and the psychological effects of opioid use?

**Educational Objects:** Upon completion, participants should be able to:

- Describe the need for risk prediction of opioid use disorder/opioid overdose for early interventions for combating the opioid epidemic.
- Explain why temporal deep learning-based methods offer promise for the development of predictive models for opioid risks.
- Identify important features that help to understand the predictions for potential clinical decision support.
- Describe GIS driven approach for understanding geospatial patterns of opioid overdose and related resources.

**Disclosure Statement:** In compliance with the ACCME Standards for Commercial Support, everyone who is in a position to control the content of an educational activity provided by the School of Medicine is expected to disclose to the audience any relevant financial relationships with any commercial interest that relates to the content of his/her presentation.

The faculty: *Fusheng Wang, Ph.D.*, the planners; and the CME provider have no relevant financial relationship with a commercial interest (defined as any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients), that relates to the content that will be discussed in the educational activity.

**Continuing Medical Education Credits:** The School of Medicine, the State University of New York at Stony Brook, is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The School of Medicine, the State University of New York at Stony Brook designates this live activity for a maximum of **1 AMA PRA Category 1 Credits™**. Physicians should only claim credit commensurate with the extent of their participation in the activity.