

# Impacts of Intelligent Real-time Signal Processing Systems for Empowering IoT and AI Healthcare Monitoring

Modern wearable medical devices could be capable of sensing, processing, aggregating, analysing and transmitting the augmented data to remote data-driven predictive cardiac health intelligence networks. The wearable devices combine a wide range of on-chip electrophysiological sensor readouts with sensor fusion, signal processing, memory and power management, and wireless connectivity. Recently deep neural network has emerged as a new area of machine learning research and has become the most popular artificial intelligent technique for almost all event recognition, detection and prediction tasks. However, the two major challenges such as improving battery life and false alarm rate reduction play a vital role in deciding a future of battery-powered long-term IoT monitoring devices and unsupervised health monitoring devices, respectively.

*This talk will mainly focus on addressing architectural research, design and optimization of signal processing algorithms for designing lightweight and low-energy embedded biosignal processor by highlighting various design constraints and challenging problems of cloud-centric and embedded IoT health monitoring applications. Practical examples of signal processing algorithms will be presented in the lecture. This tutorial mainly aims to provide insights to design and development of real-time quality-aware cardiac signal processing scheme for improving battery life of IoT wearable devices and reducing false alarms of unsupervised embedded health monitor.*

**Lectures: \* Hands-on Training: \* Demo presentation**

## Tutorial Speakers:



**Dr. M. Sabarimalai Manikandan** is currently working as Assistant Professor in the School of Electrical Sciences at the Indian Institute of Technology, Bhubaneswar. He graduated in Electronics and Communication Engineering from the then Amrita Institute of Science and Technology. He later did his Master's in Microwave and Optical Engineering from Alagappa Chettiar College of Engineering And Technology and obtained his Ph.D. in Biomedical Signal Processing from Indian Institute of Technology, Guwahati. His research interests are in Signal and Image Processing; VLSI Signal Processing; Internet-of-Things and Mixed Reality Systems. He has published over 25 journal and 40 conference papers, is the inventor of 06 patents. His research team is working on five major sponsored projects. He was a Chief Engineer with the Advanced Technology Group, Samsung India Electronic Pvt. Ltd., Noida, India and was a recipient of the 2012 Outstanding Performance Award during his tenure at Samsung India Electronic Pvt. Ltd.



**Dr. Barathram Ramkumar** received the M.S. degree in electrical engineering from Idaho State University, Pocatello, in 2007, and the Ph.D. degree in electrical engineering from Virginia Polytechnic Institute and State University, Blacksburg, in 2011. He is currently an Assistant Professor with IIT Bhubaneswar, Bhubaneswar. His research interests include signal processing, cognitive radios, and wireless communication. He has been a reviewer of a number of prestigious conferences and journals.

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर  
Indian Institute of Technology Bhubaneswar

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Мова лекції та семінару англійська.**



# УВАГА ЛЕКЦІЯ!

भारतीय प्रौद्योगिकी संस्थान भुवनेश्वर  
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У четвер, 21 березня 2019 о 14:15 в ауд. 412-12  
корп. КПІ

ім. Ігоря Сікорського (вул. Акад. Янгеля 9/16) відбудеться **лекція-семінар**  
професорів Індійського інституту технологій м. Бхубанешвар, штат Оріша  
(Indian Institute of Technology Bhubaneswar)

**Dr. M. Sabarimalai Manikandan та Dr. Barathram  
Ramkumar**

На тему:

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Також у четвер 21 березня о 10:25 у лабораторії кімн. 147-12 корп. КПІ ім. Ігоря Сікорського відбудеться презентація-тренінг з демонстрацією біомедичних приладів-гаджетів для моніторингу здоров'я

