

Special Session

Code: kjx99

Title

Machine learning for Intelligent Imaging Systems

Proposer / Main Organizer

Sos Agaian, Ph.D
Professor
Computer Science, City University of New York
2800 Victory Blvd
Staten Island, NY 10314
Email: Sos.Agaian@csi.cuny.edu

Jinshan Tang, Ph.D
Professor
Affiliation: George Mason University
Fairfax, VA, 22030, USA
Email: jtang25@gmu.edu

Sos Agaian: Dr. Agaian is currently a Distinguished Professor of Computer Science at the City University of New York. Prior to this, Dr. Agaian was the Peter T. Flawn Professor of Electrical and Computer Engineering at the University of Texas, San Antonio (UTSA). Dr. Agaian is the recipient of numerous awards including the San Antonio Business Journal's "The Tech Flash Titans-Top Researcher" Award. Other honors include IEEE Fellow, AAAS Fellow, SPIE Fellow, and IS&T Fellow. Dr. Agaian is an Associate Editor for nine journals: IEEE Transaction on Image Processing, IEEE Transactions on Systems, Man, and Cybernetics: Systems, Journal of Electronic Imaging, Journal of Electrical and Computer Engineering, etc. Dr. Agaian received his Ph.D. in Mathematics Physics from the Steklov Institute of Mathematics, Russian Academy of Sciences; and his Doctor of Engineering Sciences degree from the Institute of Control Systems, RAS. **He is the Co-Chair of the Technical Committee on Information Assurance and Intelligent Multimedia-Mobile Communications, IEEE SMC Society.**

Jinshan Tang: Dr. Tang is a full professor at George Mason University, Virginia. He obtained his Ph.D. degree from Beijing University of Posts and Telecommunications and received post-doctoral training at Harvard Medical School and National Institute of Health. He has obtained more than \$4 million grants in the past years as a PI or a Co-PI. He has published over 120 refereed journal and conference papers and two books. His research has been supported by NIH, USDA, DoD, Air force, DoT, and DHS. He served as a guest editor of several journals including IEEE Transactions on SMC: Part C, Pattern Recognition, IEEE Journal of Selected Topics in Signal Processing, IEEE Systems Journal. He is a Senior Member of IEEE

and the **Co-Chair of the Technical Committee on Information Assurance and Intelligent Multimedia-Mobile Communications, IEEE SMC Society.**

IEEE Member or SMC Society Member

Sos Again, IEEE Fellow (Both of IEEE and SMC member)

Jinshan Tang, Senior Member, IEEE (Both of IEEE and SMC member)

Category

Please select one of the following categories:

- Cybernetics (x)
- Human-Machine Systems
- Systems Science and Engineering

Number of Expected Paper Submissions:

8

Keywords

- Machine Learning
- Deep Learning
- Computational Intelligence
- Image Processing and Pattern Recognition

Brief Description and Justification (200-250 words):

In the past, imaging techniques have found great applications in different fields, such as security, industry, agriculture, military, medical diagnosis and so on. Intelligent imaging systems mean that the system can analyze the image data by itself, can find the patterns in the data by itself, and can make decisions by itself. Over the decade, the intelligent imaging techniques has witnessed a remarkable evolution that has impacted on research and real applications. Although intelligent imaging systems have obtained great development in the past 10 years, the performance of intelligent imaging systems needs significant improvement so that it can meet the needs of real applications. Recent progress in machine learning techniques has set a new stage for intelligent imaging system research and applications. A major recent development is the progress in deep learning techniques, which has attracted attention from both academic research and commercial applications. Deep learning is the fastest-growing field in machine learning and is being applied to intelligent imaging systems. Recent research has demonstrated that deep learning can increase intelligent imaging systems' performance significantly. We expect that deep learning techniques will cause a revolution on the intelligent imaging systems.

The topic is directly related to SMC 2022 theme: Human-Centered Systems for Smart and Connected Communities and Infrastructures.

Both proposers are the Co-chairs of the **Technical Committee on Information Assurance and Intelligent Multimedia-Mobile Communications, IEEE SMC society.** We organized at least 10 special sessions for IEEE SMC conferences in the past. Both proposers served as the committee of each SMC conference and reviewed papers for IEEE SMC conferences in the past 10 years.