

## Special Session Title:

Machine learning in healthcare

### Special Session Organizer Name & Affiliation:

Aristeidis Sotiras, Washington University in St. Louis; Kavhan  
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### Special Session Speaker Name & Affiliation 1:

Aristeidis Sotiras, Washington University in St. Louis

### Special Session Speaker Name & Affiliation 2:

Kavhan Batmanhelich, University of Pittsburgh

### Special Session Speaker Name & Affiliation 3:

Daniel Marcus, Washington University in St. Louis

### Special Session Speaker Name & Affiliation 4:

Shvam Visweswaran, University of Pittsburgh

### Special Session Speaker Name & Affiliation 5:

### Special Session Speaker Name & Affiliation 6:

## Theme:

- 01. Biomedical Signal Processing
- 02. Biomedical Imaging and Image Processing
- 03. Micro/ Nano-bioengineering: Cellular/ Tissue Engineering &
- 04. Computational Systems & Synthetic Biology; Multiscale modeling
- 05. Cardiovascular and Respiratory Systems Engineering
- 06. Neural and Rehabilitation Engineering
- 07. Biomedical Sensors and Wearable Systems
- 08. Biorobotics and Biomechanics
- 09. Therapeutic & Diagnostic Systems and Technologies
- 10. Biomedical & Health Informatics
- 11. Biomedical Engineering Education and Society
- 12. Translational Engineering for Healthcare Innovation and Commercialization

### Special Session Synopsis— Max 2000 Characters

The healthcare industry increasingly adopts machine learning (ML) and deep learning (DL) to help patients and clinicians in different ways. Imaging and medical records are cornerstones of medicine, and deep learning has shown its potential to leverage the rapidly growing numbers of patient studies. Deep learning algorithms can be trained to interpret images and other patient data, thus improving accuracy of clinical workflows. However, most deep learning and machine learning research has focused on non-medical data (e.g., natural images), while relying on large samples with extensive annotated data. Importantly, high stake applications, such as healthcare, require more than just prediction. In this special session, we cover many aspects of ML and DL applications for healthcare, from Explainability for AI (XAI) and learning with "Weak and Limited data" to informatics infrastructure that may support development and deployment of DL tools.