**AI4US: Unlocking the potential of Artificial Intelligence for UltraSound image processing**

BHI 2021 Regular Workshop

Ultrasound (US) is an imaging modality widely used in the clinical practice due to its reliability, safety, accessibility, and cost-effectiveness. Artificial intelligence (AI) is undertaking a major role in US image analysis. There is huge potential for AI to assist clinicians in repetitive US tasks, such as automatically identifying good‐quality acquisitions and providing instant quality assurance. By tackling the challenges of US image analysis, AI is a valuable tool to further assist clinicians in complex tasks, including lesion identification and automatic biometric measurement. Despite the large number and variety of data collected daily, the potential of AI in the field of US image analysis has still to be fully unlocked.

The goal of this workshop is to group expert AI researchers in US-image analysis to discuss the most recent research work and highlight current challenges and needs. AI4US aims at bridging the gap among universities, hospitals, enterprises, and stakeholders to draw a roadmap for future AI applications in the field.

The intended audience of AI4US ranges from PhD students and resident doctors that are approaching the challenges of US image analysis with AI, to experienced researchers that may be interested in knowing the latest breakthrough research. Graduate students in biomedical engineering, computer science and medicine may benefit from the invited speakers’ presentations highlighting the current research work being done on AI for US image analysis.

The workshop calls for research contributions in the field of US image analysis addressing, but not limited to, the following topics:

* + Image classification, segmentation, and detection with deep learning
  + Data driven image registration, including multi-modal registration
  + Spatio-temporal analysis
  + Generative models and semi-supervised approaches
  + Data collection and annotation strategies
  + Algorithm deployment in embedded systems

**LIST OF INVITED SPEAKERS**

* Prof. Emilio Filippucci - Rheumatology Unit, Department of Clinical and Molecular Sciences, “Carlo Urbani” Hospital, Jesi, Italy
* Prof. Bruno Madore - Department of Radiology, Brigham and Women’s Hospital, Harvard Medical School, Boston, US
* Dr. Nicola Guraschi– Esaote S.p.A., Genoa, Italy

**SCHEDULE**

1:00 - 1:05 pm: Welcome by the workshop organizers

1:05 - 1:20 pm: Prof. Emilio Filippucci: “**The value of artificial intelligence in ultrasound in rheumatology: the clinical perspective**”

1:20 - 1:35 pm: Prof. Bruno Madore: **“Ultrasound-based sensors to monitor internal motion”**

1.35 - 2.50 pm: Nicola Guraschi: “**AI in US: a new paradigm to support clinicians in the ultrasound examination”**

2.50 - 3.00 pm: Q&A session

3.00 - 3.15 pm: spotlight session and closing remarks

# ORGANIZERS

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