Program of the 4th International Workshop on Computer Vision for Physiological Measurement (CVPM)

In conjunction with IEEE-CVPR 2021

Date: June 25, 2021 (half-day workshop, fully virtual/online)

Time zones:

- North America (West) 8:00 AM – 11:30 PM (**reference time**)
- North America (East) 11:00 AM – 14:30 PM
- Europe (Central, Amsterdam) 17:00 PM – 20:30 PM
- London 16:00 PM – 19:30 PM
- China (Beijing) 23:00 PM – 2:30 AM (Day +1, midnight)
- India (New Delhi) 20:30 PM – 12:00 AM (Day +1, midnight)

Link:

- Topic: CVPM-CVPR 2021
- Join Zoom Meeting
  https://zoom.us/j/98261578809?pwd=OWxQWWRETkd3LzlQenZzelZCY2RCQT09
- Meeting ID: 982 6157 8809
- Passcode: CVPM2021

Talks:

- Invited keynote (60 min): 45 min content + 15 min Q&A
- Accepted oral (10 min): 8 min content + 2 min Q&A

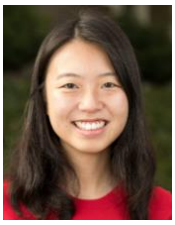
Invited keynotes

Keynote by Prof. Min Wu
University of Maryland, College Park, USA

Title: Exploiting and Protecting Visual Micro-Signals in Physiological Forensics

Abstract: Many nearly invisible "micro-signals" have played important roles in media security and forensics. Traditionally regarded as noise or interference, these micro-signals are ubiquitous and typically an order of magnitude lower in strength or scale than the dominant ones. The main visual micro-signals for physiological forensics are the subtle changes in facial skin color following the heartbeat. Video analysis of this repeating change provides a contact-free way to capture photo-plethysmogram (PPG). This talk will review the connections for micro-signal analysis between physiological forensics and other media forensic research, and highlight the synergistic roles of signal processing, computer vision, data science, and biomedical insights.

It is also important to recognize the sensitive nature of facial PPG in terms of privacy concerns, as both a person's identity and his/her general health conditions may be revealed at the same time. The talk will include discussions about some recent research efforts on the privacy protection of facial PPG.



Keynote by Dr. Serena Yeung
Stanford University, USA

Title: Using Computer Vision to Augment Clinician Capabilities Across the Spectrum of Healthcare Delivery

Abstract: Clinicians often work under highly demanding conditions to deliver complex care to patients. As our aging population grows and care becomes increasingly complex, physicians and nurses are now also experiencing feelings of burnout at unprecedented levels. In this talk, I will discuss possibilities for computer vision to function as a partner to clinicians, and to augment their capabilities, across the spectrum of healthcare delivery. I will present examples and ongoing work towards building clinician and AI partnerships in settings ranging from surgeon assistance, to ambient ICU monitoring, and beyond.

Session 1 (in the time zone of North America (West))		
Time (AM)	Type	Title
8:00 - 9:00	Keynote	Prof. Min Wu (University of Maryland) Exploiting and Protecting Visual Micro-Signals in Physiological Forensics
9:00 - 9:30	Accepted orals (3)	Combining Magnification and Measurement for Non-Contact Cardiac Monitoring
		Assessment of deep learning based blood pressure estimation from PPG and rPPG signals
		A LSTM-Based Realtime Signal Quality Assessment for Photoplethysmogram and Remote Photoplethysmogram
9:30 – 9:40 (10 min break)		
Session 2		
Time (AM)	Type	Title
9:40 – 10:40	Keynote	Dr. Serena Yeung (Stanford University) Using Computer Vision to Augment Clinician Capabilities Across the Spectrum of Healthcare Delivery
10:40 - 11:40	Accepted orals (6)	Towards Automated and Marker-less Parkinson Disease Assessment: Predicting UPDRS Scores using Sit-stand videos
		Oxygen Saturation Estimation Based on Optimal Band Selection from Multi-band Video
		Improving Accuracy of Respiratory Rate Estimation by Restoring High Resolution Features with Transformers and Recursive Convolutional Models
		Markerless camera-based vertical jump height measurement using OpenPose
		An Infrared Thermography Model Enabling Remote Body Temperature Screening Up to 10 Meters
		Nose breathing or mouth breathing? A thermography-based new measurement for sleep monitoring