

Biomedical Signal Processing SIG

The first formal BASiG meeting was held on 17th September 2019 at the Royal Academy of Engineering. The first part of programme for the day consisted of a series of talks:

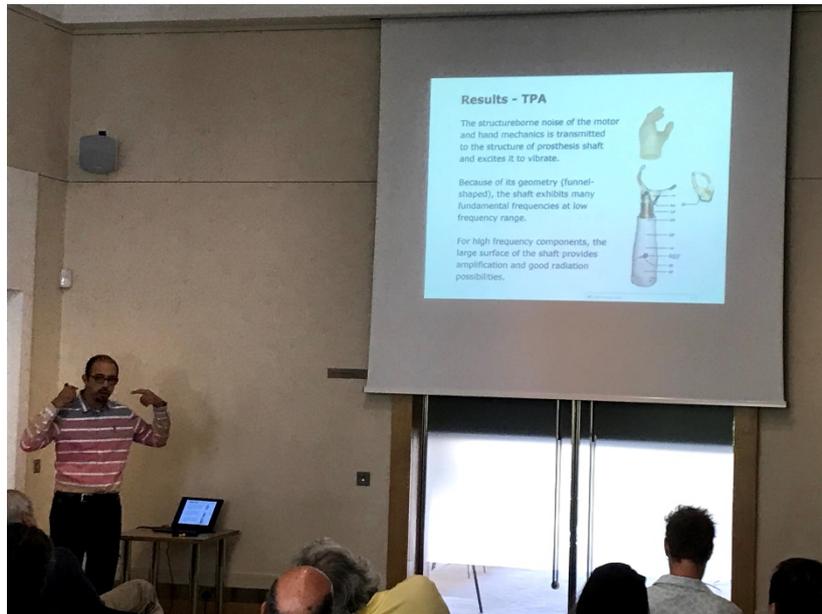
Professor Gavin Donaldson (Imperial College London), shown below, discussed a series of current challenges in the clinical context including cough and sneeze detection and counting and acoustic analysis of snoring.



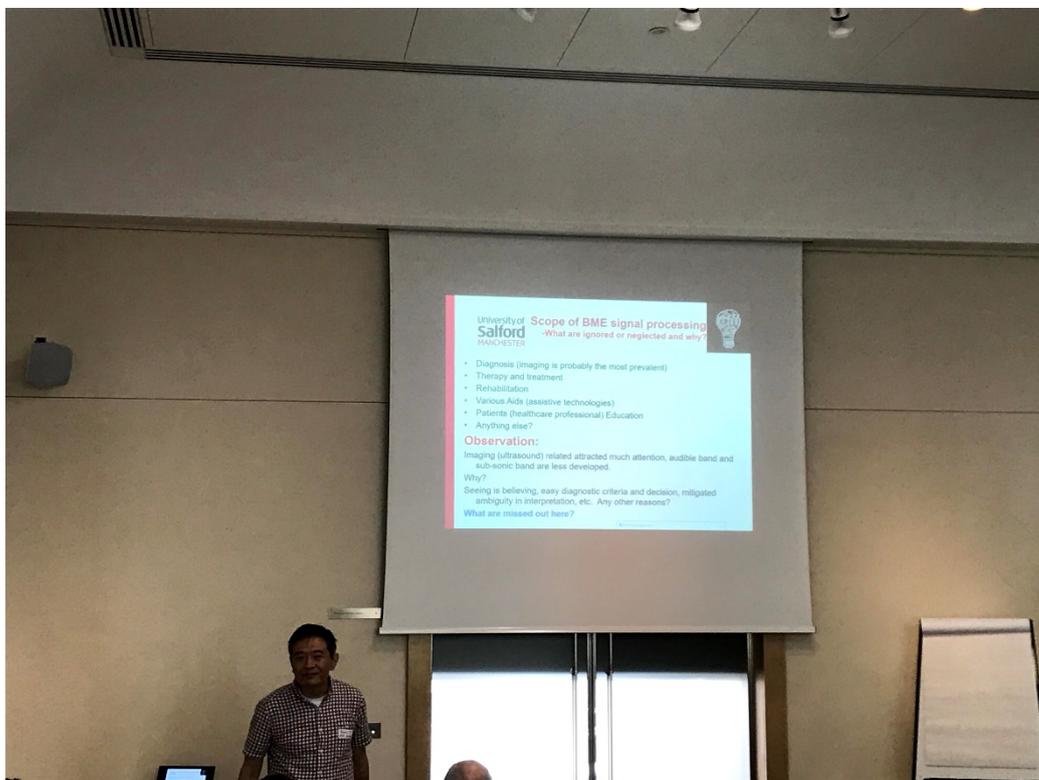
Professor Jeffrey Bamber (Royal Marsden) also gave a clinical perspective exploring the current possibilities of ultrasound both for imaging and for therapy. We heard about a new trial for more targeted cancer treatment that was just starting.



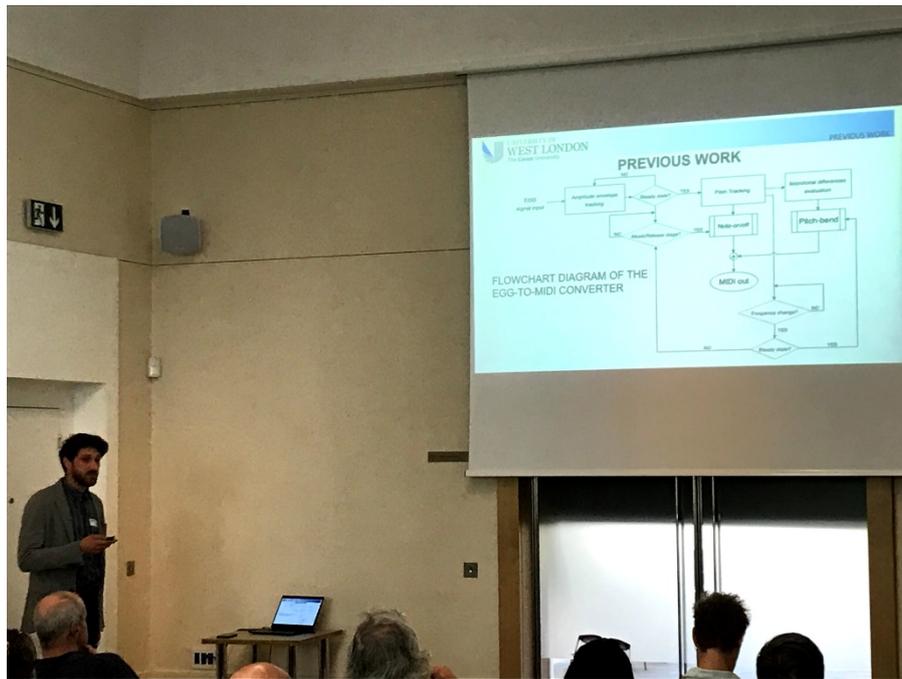
Professor Ercan Altinsoy (University of Dresden) spoke about audio frequency applications of noise including counting how many times an epi-pen had been used for insulin delivery by detecting the clicks and the use of whole body vibration to enhance audience experience in concert halls.



Dr Frances Li (University of Salford) talked about the current status of signal processing to support biomedical acoustic applications and identified DSP1.0 (denoising, signal conditioning, time-frequency analysis) DSP 2.0 (signal enhancement, feature detection, adaptive filtering), DSP 3.0 (machine learning, decision making support) and DSP 4.0 (single channel signal separation, SSA PCA deep neural networks etc).



After lunch, Eugenio Donati (University of West London) talked about the use of electroglottography to gather information on laryngeal function in singing.



Jamie Scanlan (University of Salford) spoke about his study on the use of percussion and a digital stethoscope to detect osteoporosis.



The next item was an open discussion session on what members wanted from the SiG. Suggestions included publicising the area of research (BTS meeting in December, links with the IoA, a letter to Thorax – perhaps on the possibilities opened up by DS 4.0), support for ECRs through blogs and abstracts from their papers on the SiG section of the UKAN web site, an event for SMEs on KTNs.

Members were keen to emphasise the scope of interests in the SiG: Transmission in complex material (bones, joints), ultrasound, lung sounds and breathlessness, insect acoustics, (bio-degradable/absorbable) transducers, AI/Machine Learning, physical modelling of biomedical

processes, smart tissue scaffolds; and discussed various possibilities for large grant application to be considered further after the meeting.

Members were keen to have more meetings and to join with the rooms and comms sig in their longer meeting planned for April 2020.

AB & HA

31/10/2019

Pictures from BASIG meeting and lunch break

