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Biography

John is a lecturer in Digital Signal Processing, Measurement, Circuits and Video Data at UoP and has worked in signal and image processing for twenty years with some established collaborators and a track record of supporting research projects at Surrey, Bristol and Portsmouth, including funding from Google and Mitsui Sumitomo Insurance Welfare Foundation. He began academic research with a doctoral training grant in the Centre for Vision, Speech and Signal Processing (CVSSP) at Surrey in the early 2000s, investigating medical image analysis applied to MRI, PET and CT. He is a MIET. He received awards from IEEE and IPEM and has been the PI for projects concerning the manipulation of data, especially applied to fibrous materials, forecasting of blood pressure and identifying people and their actions.

Research Interests

John leads work on techniques for the automated analysis of 3D imaging data. The work is multidisciplinary - spanning multiple disciplines but concentrating on feature extraction and quantitative inference. The work has been successfully applied to fibrous materials, forecasting of blood pressure and identifying people and their actions. This includes applications to image analysis of XCT for nano-fibres for biomedical and health applications and steel fibre reinforced concrete. John is also working on automated video processing techniques with applications including assisted living and more general action recognition. John is happy to supervise graduate and research projects in these areas and more generally in the fields of signal and image processing.

Research output

Intelligent control and HCI for a powered wheelchair using a simple expert system and ultrasonic sensors

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Fiber-based composite meshes with controlled mechanical and wetting properties for water harvesting

Joanna Knapczyk-Korczyk, Daniel P. Ura, Marcin Gajek, Mateusz M. Marzec, Katarzyna Berent, Andrzej Bernasik, Dr John Chiverton & Urszula Stachewicz, 10 Dec 2019, In : *ACS Applied Materials & Interfaces*. 12, 1, p. 1665-1676 12 p.

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Deep learning of fuzzy weighted multi-resolution depth motion maps with spatial feature fusion for action recognition
Mahmoud M N Al-Faris, Dr John Chiverton, Dr Linda Yang & David Ndzi, 21 Oct 2019, In : Journal of Imaging. 5, 10, 25 p. , 82.

Speaker recognition using PCA-based feature transformation

Ahmed Isam Ahmed, Dr John Chiverton, David L. Ndzi & Professor Victor Becerra, Jul 2019, In : Speech Communication. 110, p. 33-46 14 p.

Automatic diameter and orientation distribution determination of fibrous materials in micro x-ray CT imaging data

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Practical action recognition with manifold regularized sparse representation

Lining Zhang, Dr Rinat Khusainov & Dr John Chiverton, 6 Sep 2018, *The British Machine Vision Conference*. British Machine Vision Association, 11 p.

Comparative analysis of the outcomes of differing time series forecasting strategies

Shamsul Masum, Ying Liu & Dr John Chiverton, 25 Jun 2018, *2017 13th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD)*. Liu, Y., Zhao, L., Cai, G., Xiao, G., Li, K. & Wang, L. (eds.). Guilin: Institute of Electrical and Electronics Engineers, p. 1964-1968 5 p.

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Ikedieze Gabriel Anyim, Dr John Chiverton, Dr Misha Filip & Dr Abdulkarim Tawfik, 11 Jun 2018, *2018 IEEE Wireless Communications and Networking Conference*. IEEE, p. 2441-2446 6 p. (IEEE WCNC Proceedings Series).

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The optimization of wideband cyclostationary feature detector with receiver constraints

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Dr John Chiverton, 10 Feb 2017, *The Conversation*.

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Automatic bootstrapping and tracking of object contours

Dr John Chiverton, X. Xie & M. Mirmehdi, Mar 2012, In : *IEEE Transactions on Image Processing*. 21, 3, p. 1231-1245 15 p.

On-line learning of shape information for object segmentation and tracking

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