



Professor Andrew Calway
B.Sc.(Aston)

Professor of Computer Vision

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Summary

I am Professor of Computer Vision at the [University of Bristol](#) based in the [Department of Computer Science](#) and a member of the [Visual Information Laboratory \(VIL\)](#) and the [Bristol Robotics Laboratory \(BRL\)](#). My research covers computer vision and its applications - robotics, wearable computing and augmented reality - and I have done a lot of work on 3-D tracking and scene reconstruction, mainly in simultaneous localisation and mapping (SLAM). Working with industry and on interdisciplinary projects is always a high priority for me - please get in touch if you are interested in working with me.

Expertise

My expertise is in computer vision; extracting information from images and video to allow autonomous systems to gain an understanding of the world. I have over 25 years of research experience in this area, covering topics ranging from feature extraction and disparity estimation for stereo vision through to 3-D tracking and vision based simultaneous localisation and mapping (SLAM). The latter has been the focus of my work for the past 10 years, involving the development of early real-time monocular SLAM systems with particular emphasis on robust operation and relocalisation capability. More recently I have worked on 3-D tracking and reconstruction using RGB-D sensors and image based place recognition and navigation.

Biography

For more information see my [personal web pages](#).

Keywords

- computer vision
- robotics
- augmented reality

Memberships

Organisations

[Department of Computer Science](#)

Other sites

- [Computerscience](#)

Research Groups

- [Robotics](#)
- [Visual Information Laboratory - Core](#)

Recent publications

- Moolan-Feroze, O, Karachalios, K, Nikolaidis, D & Calway, A, 2019, '[Improving drone localisation around wind turbines using monocular model-based tracking](#)'. in: *2019 IEEE International Conference on Robotics and Automation (ICRA 2019)*. Institute of Electrical and Electronics Engineers (IEEE), pp. 7713 - 7719
- Moolan-Feroze, O, Karachalios, K, Nikolaidis, D & Calway, A, 2019, '[Simultaneous drone localisation and wind turbine model fitting during autonomous surface inspection](#)'. in: *Proceedings IEEE/RSJ International Conference on Intelligent Robots and Systems*. Institute of Electrical and Electronics Engineers (IEEE)
- Wood, K, Thomas, H, Watson, M, Calway, A, Richardson, T, Stebel, K, Naismith, A, Berthoud, L & Lucas, J, 2019, '[Measurement of three dimensional volcanic plume properties using multiple ground based infrared cameras](#)'. *ISPRS Journal of Photogrammetry and Remote Sensing*, vol 154., pp. 163-175
- Moolan-Feroze, O & Calway, A, 2019, '[Predicting Out-of-View Feature Points for Model-Based Camera Pose Estimation](#)'. in: *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018): Proceedings of a meeting held 1-5 October 2018, Madrid, Spain*. Institute of Electrical and Electronics Engineers (IEEE), pp. 82-88
- Panphattarasap, P & Calway, A, 2019, '[Automated Map Reading: Image Based Localisation in 2-D Maps Using Binary Semantic Descriptors](#)'. in: *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018): Proceedings of a meeting held 1-5 October 2018, Madrid, Spain*. Institute of Electrical and Electronics Engineers (IEEE), pp. 6341-6348
- Wood, K, Richardson, T, Berthoud, L, Watson, M, Thomas, H, Naismith, A, Lucas, J & Calway, A, 2018, '[3D Reconstruction of Volcanic Ash Plumes using Multi-Camera Computer Vision Techniques](#)', pp. 16492
- Panphattarasap, P & Calway, A, 2017, '[Visual place recognition using landmark distribution descriptors](#)'. in: *Computer Vision - ACCV 2016: 13th Asian Conference on Computer Vision, ACCV 2016, Revised Selected Papers*. Springer-Verlag Berlin, pp. 487-502
- Li, S, Handa, A, Zhang, Y & Calway, A, 2016, '[HDRFusion: HDR SLAM using a low-cost auto-exposure RGB-D sensor](#)'. in: *2016 Fourth International Conference on 3D Vision (3DV 2016): Proceedings of a meeting held 25-28 October 2016, Stanford, CA, USA*. Institute of Electrical and Electronics Engineers (IEEE), pp. 314-322
- Li, S & Calway, AD, 2016, '[Absolute pose estimation using multiple forms of correspondences from RGB-D frames](#)'. in: *2016 IEEE International Conference on Robotics and Automation (ICRA 2016): Proceedings of a meeting held 16-21 May 2016, Stockholm, Sweden*. Institute of Electrical and Electronics Engineers (IEEE), pp. 4756-4761
- Panphattarasap, P & Calway, A, 2016, '[Visual place recognition using landmark distribution descriptors](#)'. arXiv.org

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