

Dr JING WU

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EMPLOYMENT

08/2016 **Lecturer**
School of Computer Science & Informatics, Cardiff University, UK

09/2009 – 07/2016 **Research Associate** in Visual Computing
School of Computer Science & Informatics, Cardiff University, UK

From 2009 to 2013, I was in a RIVIC (One Wales Research Institute of Visual Computing) scientific programme; my research aimed at geometric generation of bas-reliefs from photographs.

Since 2013, I have been working on an EPSRC project – Realistic Shape from Shading, which aims to achieve accurate shape reconstruction from sophisticated real-world images.

EDUCATION

09/2005 – 08/2009 **PhD** in Computer Science
Department of Computer Science, University of York, UK.
Thesis: Statistical Approaches to Gender Classification in the Surface Normal Domain
Supervisor: Prof Edwin Hancock.

I explored the use of 2.5D information in facial gender classification. The research involved foundations from human perception, shape from shading, and various statistical feature extraction approaches.

09/2002 – 06/2005 **MSc** in Computer Application Technology
Department of Computer Science and Technology, Nanjing University, China.
Thesis: Image Vectorization and its Application to an Intelligent Stitching CAD System
Supervisor: Prof Shifu Chen and Prof Zhaoqian Chen.

I was in the Artificial Intelligence Group doing research on image vectorization. I also participated in the Precise Digitizing Solution project which was collaborated with Stitches Creation INC. Canada.

09/1998 – 06/2002 **BSc** in Computer Science
Department of Computer Science and Technology, Nanjing University, China.
Dissertation: Image Retrieval using Color Information.

RESEARCH

My research interests lie in the areas of 3D reconstruction and face recognition, with current particular interests in computer-aided bas-relief generation, machine learning approaches to shape from shading, and non-rigid 3D reconstruction from video.

Selected publications:

- J. Wu, R.R. Martin, P.L. Rosin, X.-F. Sun, F.C. Langbein, Y.-K. Lai, A.D. Marshall, Y.-H. Liu. Making Bas-reliefs from Photographs of Human Faces. *Computer-Aided Design*, 2013, 45(3): 671-682.
- J. Wu, W.A.P. Smith, E.R. Hancock. Gender Discriminating Models from Facial Surface Normals. *Pattern Recognition*, 2011, 44(12): 2871-2886. (Cited by 12)
- J. Wu, W.A.P. Smith, E.R. Hancock. Gender Classification using Shape from Shading. *BMVC 2007*. (**Best Security Paper Prize**) (Cited by 61)

TEACHING

Lecturing (Cardiff University)

- Problem Solving with Python (undergraduate – first year)
- Computational Thinking (undergraduate – MSc)

Teaching assistant (The University of York)

- Vision and Graphics (undergraduate – second year)
- Computer Systems Architecture for IT (postgraduate – MSc)
- Introduction to Computer Architectures (undergraduate – first year)

EXTERNAL REVIEWING:

Pattern Recognition, Computer Aided Design, IEEE Transactions on Human-Machine Systems, Graphical Models, Pattern Recognition Letters, IET Computer Vision, Computational Visual Media, Multimedia Tools and Applications, etc.

I also review EPSRC proposals which are relevant to my research.

DISTINCTIONS

Best paper awards:

2007 BMVC Best Security Paper Prize

Awarded to the best security paper in the British Machine Vision Conference

Other awards and scholarships

2005 - 2008 ORSAS (Overseas Research Students Awards Scheme), UK.
2005 - 2008 Overseas Student Scholarship, University of York, UK
2004 National Scholarship, Nanjing University, China.
2004 Outstanding Graduate Student, Nanjing University, China.
1999 - 2002 Public Scholarship, Nanjing University, China.
2001 Scholarship from Linkage Technologies Co., Ltd.
1999 Scholarship from Fujitsu Limited.

PUBLICATIONS

Journal Articles:

1. S. Liu, J. Xiao, J. Liu, X. Wang, J. Wu, J. Zhu. Visual Diagnosis of Tree Boosting Methods. *IEEE Transactions on Visualization and Computer Graphics*, to appear, 2017
[doi:10.1109/TVCG.2017.2744378](https://doi.org/10.1109/TVCG.2017.2744378)
2. J. Wu, P.L. Rosin, X. Sun, R.R. Martin. Improving Shape from Shading with Interactive Tabu Search. *Journal of Computer Science and Technology*, 31(3): 450-462, 2016
[doi:10.1007/s11390-016-1639-1](https://doi.org/10.1007/s11390-016-1639-1)
3. J. Wu, R.R. Martin, P.L. Rosin, X.-F. Sun, Y.-K. Lai, Y.-H. Liu, C. Wallraven. Use of Non-Photorealistic Rendering and Photometric Stereo in Making Bas-reliefs from Photographs. *Graphical Models*, 76(4): 202-213, 2014.
[doi:10.1016/j.gmod.2014.02.002](https://doi.org/10.1016/j.gmod.2014.02.002)
4. J. Wu, R.R. Martin, P.L. Rosin, X.-F. Sun, F.C. Langbein, Y.-K. Lai, A.D. Marshall, Y.-H. Liu. Making Bas-reliefs from Photographs of Human Faces. *Computer-Aided Design*, 45(3): 671-682, 2013.
[doi:10.1016/j.cad.2012.11.002](https://doi.org/10.1016/j.cad.2012.11.002)
5. J. Wu, W.A.P. Smith, E.R. Hancock. Gender Discriminating Models from Facial Surface Normals. *Pattern Recognition*, 44(12): 2871-2886, 2011.
[doi:10.1016/j.patcog.2011.04.013](https://doi.org/10.1016/j.patcog.2011.04.013)
6. M. Kawulok, J. Wu, E.R. Hancock. Supervised relevance maps for increasing the distinctiveness of facial images. *Pattern Recognition*, 44(4): 929-939, 2011.
[doi:10.1016/j.patcog.2010.10.010](https://doi.org/10.1016/j.patcog.2010.10.010)
7. J. Wu, W.A.P. Smith, E.R. Hancock. Facial Gender Classification using Shape from Shading. *Image and Vision Computing*, 28(6): 1039-1048, 2010.
[doi:10.1016/j.imavis.2009.09.003](https://doi.org/10.1016/j.imavis.2009.09.003)
8. J. Wu, N. Li, S. Chen. A Seed Filling Based Image Thresholding Algorithm. *Computer Science*, 32(4), 2005.
9. W. Yu, C. Wang, J. Wu, Z. Chen. Image Retrieval Algorithm Based on Global Color and its Implementation. *Computer Science*, 31(2), 2004

Conference Papers:

1. L. Zhang, E.R. Hancock, J. Wu. Estimating Surface Characteristics and Extracting Features from Polarisation. *Joint IAPR International Workshops on Structural and Syntactic Pattern Recognition and Statistical Techniques in Pattern Recognition (SSPR/SPR)*, 2012, (LNCS Volume 7626, pp 400-408).
[doi:10.1007/978-3-642-34166-3_44](https://doi.org/10.1007/978-3-642-34166-3_44)
2. Z. Zhang, E.R. Hancock, J. Wu. An Information Theoretic Approach to Gender Feature Selection. *IEEE International Conference on Computer Vision Workshops (ICCV Workshops)*, 2011, pp 1425-1431.
[doi:10.1109/ICCVW.2011.6130418](https://doi.org/10.1109/ICCVW.2011.6130418)
3. J. Wu, W.A.P. Smith, E.R. Hancock. Semi-supervised Feature Selection for Gender Classification. *Asian Conference on Computer Vision (ACCV)*, 2009, pp 23-33.
[doi:10.1007/978-3-642-12304-7_3](https://doi.org/10.1007/978-3-642-12304-7_3)

4. J. Wu, W.A.P. Smith, E.R. Hancock, M. Kawulok. Extracting Gender Discriminating Features from Facial Needle-maps. *IEEE International Conference on Image Processing (ICIP)*, 2009, pp 2449-2452.
[doi:10.1109/ICIP.2009.5414129](https://doi.org/10.1109/ICIP.2009.5414129)
5. J. Wu, W.A.P. Smith, E.R. Hancock. Supervised Principal Geodesic Analysis on Facial Surface Normals for Gender Classification. *Joint IAPR International Workshops on Structural and Syntactic Pattern Recognition and Statistical Techniques in Pattern Recognition (SSPR/SPR)*, 2008, (LNCS Volume 5342, pp 664-673).
[doi:10.1007/978-3-540-89689-0_70](https://doi.org/10.1007/978-3-540-89689-0_70)
6. J. Wu, W.A.P. Smith, E.R. Hancock. Gender Classification based on Facial Surface Normals. *International Conference on Pattern Recognition (ICPR)*, 2008.
[doi:10.1109/ICPR.2008.4761056](https://doi.org/10.1109/ICPR.2008.4761056)
7. J. Wu, W.A.P. Smith, E.R. Hancock. Facial Gender Classification Using Shape from Shading and Weighted Principal Geodesic Analysis. *International Conference on Image Analysis and Recognition (ICIAR)*, 2008, (LNCS Volume 5112, pp 925-934).
[doi:10.1007/978-3-540-69812-8_92](https://doi.org/10.1007/978-3-540-69812-8_92)
8. J. Wu, W.A.P. Smith, E.R. Hancock. Weighted Principal Geodesic Analysis for Facial Gender Classification. *Iberoamerican Congress on Pattern Recognition (CIARP)*, 2007, (LNCS Volume 4756, pp 331-339).
[doi: 10.1007/978-3-540-76725-1_35](https://doi.org/10.1007/978-3-540-76725-1_35)
9. J. Wu, W.A.P. Smith, E.R. Hancock. Gender Classification using Shape from Shading. *British Machine Vision Conference (BMVC)*, 2007. **(Best Security Paper Prize)**
[doi:10.5244/C.21.50](https://doi.org/10.5244/C.21.50)
10. M.P. Dickens, W.A.P. Smith, J. Wu, E.R. Hancock. Face Recognition Using Principal Geodesic Analysis and Manifold Learning. *Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA)*, 2007, (LNCS Volume 4477, pp 426-434).
[doi:10.1007/978-3-540-72847-4_55](https://doi.org/10.1007/978-3-540-72847-4_55)
11. J. Wu, W.A.P. Smith, E.R. Hancock. Learning Mixture Models for Gender Classification Based on Facial Surface Normals. *Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA)*, 2007, (LNCS Volume 4477, pp 39-46).
[doi:10.1007/978-3-540-72847-4_7](https://doi.org/10.1007/978-3-540-72847-4_7)
12. J. Wu, W.A.P. Smith, E.R. Hancock. Gender Classification using Principal Geodesic Analysis and Gaussian Mixture Models. *Iberoamerican Congress on Pattern Recognition (CIARP)*, 2006, (LNCS Volume 4225, pp 58-67).
[doi:10.1007/11892755_6](https://doi.org/10.1007/11892755_6)
13. J. Wu, Y. Yang, W. Li, Z. Chen. Research on Color-based Image Retrieval Methods. *The 8th China Conference on Machine Learning*, 2002.