Professor Mark W. Jones
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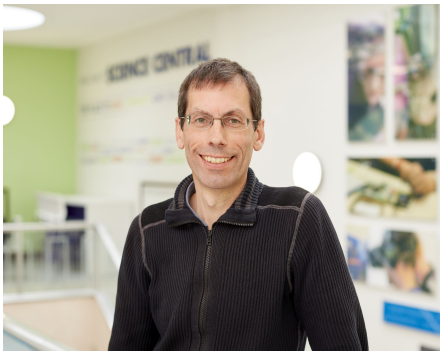

Research Interests

Professor Mark W. Jones is a data scientist with areas of expertise in photon mapping, ray tracing, global illumination, visualization, kernel density estimation, time-series data, accelerometry data, transfer functions, probability density functions, clustering, Monte-Carlo techniques, statistics, distance measures, Lloyd's relaxation, Voronoi diagrams, vector/chamfer distances, volume rendering, data structures (kd-trees).

Employment History

March 2015 – present	**Professor,** in Department of Computer Science, Swansea University.
October 2012 – March 2015	**Reader,** in Department of Computer Science, Swansea University.
October 2006 – October 2012	**Senior lecturer,** in the Department of Computer Science, University of Wales Swansea (renamed as Swansea University in 2007).
October 1995 – October 2006	**Lecturer (A) then Lecturer (B),** in the Department of Computer Science, University of Wales Swansea.

Education

October 1992 – October 1995	**Ph.D., University of Wales Swansea** under the supervision of Min Chen with PhD awarded in October 1995. Thesis title: *The Visualisation Of Regular Three Dimensional Data.*
October 1989 – July 1992	**First Class B.Sc. with Honours, University of Wales Swansea** in Computer Science.

Notable Professional Leadership & Contributions

Serving the Graphics Community

2015	**Programme Chair,** *26th British Machine Vision Conference [0]*
2014–2017	**Associate Editor,** *Computer Graphics Forum*
2010–2020	**Management Board Member,** The Research Institute of Visual Computing
2003	**Conference Chair,** *TPCG '03, Birmingham, UK [0]*
2002	**Conference Chair,** *EGUK '02, Leicester, UK [0]*
	Elected member of the EGUK Executive Committee
1999	**Local Organisation Co-Chair,** Volume Graphics 1999

Leadership at Swansea University

2011–present	**REF Environment Lead,** Swansea University. Notably authoring the REF 2014 Environment, REF 2021 Environment and REF 2029 People, Culture and Environment submissions for UoA 11 (Computer Science).

Notable Professional Leadership & Contributions (continued)

Group Lead, Visual and Interactive Computing Group, Swansea University. Since 1992 when it was first established, the group has grown to a team of ten academics and around 20 researchers and PhD students. The group has built an international profile in the areas of Machine Learning, Computer Vision, Data Analysis, Data Visualisation, Ray Tracing and Global Illumination.

2011–2016 **Director of Computer Science Admissions, Swansea University,** encompassing policy, managing workflows for admissions, creating recruitment brochure, talks at open and visit days, meeting students/parents, handling all queries and UCAS forms, attending all meetings, gathering statistics, NSS, league tables.

External Examiner (BSc and MSc Programmes)

2006–present **External,** moderator, or subject representative for programmes at various times for University of East Anglia, University of Wales, Aberystwyth University, and Warwick University.

Awards and Prizes

2020 **ICIP 2020, Top Viewed Q&A Paper Award 2nd place** The COVID struck ICIP was held entirely online in early 2021. Our paper *Lossless Compression For Volumetric Medical Images Using Deep Neural Network With Local Sampling* [0] was the second top viewed paper with a $1000 prize.

2017 **Computer Graphics and Visual Computing (CGVC) 2017, Best Full Paper Award** A best paper award for *Data Painter: A Tool for Colormap Interaction* [0].

2015 **Computer Graphics and Visual Computing (CGVC) 2015, Best Paper Award** A best paper award for *Multivariate Hybrid Visualisation of Ornithological Sensor Data* [0].

2013 **ACM Computing Reviews, Notable Article Award** An award for our Photon Mapping work [0].

Eurographics 2013, Best Paper Award Awarded for *Photon Parameterisation for Robust Relaxation Constraints* [0] with a prize of €1500 and a nVidia Quadro Kepler K6000 GPU.

Computer Graphics Forum, Cover Image: Prism Our entry *Prism* was judged to be the winning entry combining artistic and technical merit for the Cover Image competition and used for the *Computer Graphics Forum 2013* journal cover for a whole year.

2009 **Eurovis 2009, Best Paper Award** Awarded for *Visualization of Sensor Data from Animal Movement* which created new visualisation and analysis techniques for animal motion data in collaboration with biologists.

Computer Graphics Forum, Cover Image: Leaf Our entry *Water droplet on leaf* was judged to be the winning entry combining artistic and technical merit for the Cover Image competition and used for the *Computer Graphics Forum 2009* journal cover for a whole year.

Research Grants

Total award value £2,520,921

07/04/2022–07/04/2022 **£144,930, Innovate UK, Innovate UK KTP 21-22, Round 5** Awarded, but not started due to company pull out. *Principal Investigator*

30/09/2022–30/09/2026 **EPSRC, Efficient labelling of underwater datasets (Beam)** CDT Studentship (Jason Summers) with Vaarst/Beam. *Principal Investigator*

30/09/2019–31/05/2024 **EPSRC, UKHO Celestial Navigation Project** CDT Studentship (Floyd Hepburn-Dickins) with UKHO. *Principal Investigator*

30/09/2019–30/09/2023 **EPSRC, Geospatial machine learning in safety critical systems (UKHO)** CDT Studentship (Tulsi Patel) with UKHO. *Principal Investigator*

Research Grants (continued)

01/09/2018–31/08/2020	**£107,343, Welsh Government (COFUND), Developing new dimension reduction techniques and their integration with information visualisation for new visual analytics approaches** Awarded, started, but sadly ended early due to bereavement. *Principal Investigator*
01/12/2016–30/11/2019	**£174,813, Welsh Government (COFUND), Improving algorithms for scientific discoveries** This funded ManDuhu on a fellowship to work on advanced GPU algorithms. *Principal Investigator*
01/09/2016–15/08/2020	**£993,796, EPSRC, Data Release - Trust, Identity, Privacy and Security** £1,242,246 FEC. We (myself, John Tucker, Markus Roggenbach and Xianghua Xie at Swansea) worked with Victoria Wang and Mark Button at the Institute of Criminal Justice Studies, University of Portsmouth, bringing the total funding to £1.6M. Related grant: https://gtr.ukri.org/projects?ref=EP/N027825/1. *Principal Investigator*
01/04/2016–30/06/2016	**£30,000, DVLA, DVLA Data Aggregation Impact (DAI) project** *Principal Investigator*
01/09/2013–31/08/2015	**£89,523, Leverhulme, Advanced Visualisation Techniques for Urban Modelling/Simulation** This was a collaboration with Sir Alan Wilson of UCL CASA to introduce visualisation techniques into his dynamic urban modelling work. It funded Joel Dearden to work as an PDRA on the project. Joel was a fantastic person, and is greatly missed by everyone who knew him. *Principal Investigator*
01/08/2011–31/07/2014	**£247,013, EPSRC, Faster and higher quality global illumination** *Principal Investigator*
01/06/2011–30/06/2011	**£1,800, EADS, Visualisation of Network Security** *Principal Investigator*
01/01/2009–31/12/2012	**£100,000, Welsh Government, Sub-programme leader within the One Wales Research Institute for Visual Computing (RIVIC)** This was a large multi-site convergence grant (Bangor, Aberystwyth, Cardiff, Swansea, >£5M). The Swansea programme was led by Min Chen. I was a Sub-programme leader on the grant with a 3 year RA post funded and an equipment and travel budget. My component of Swansea's funding was about £100,000. I took over management of the grant at Swansea (>£1M) when Professor Min Chen left. *Co-investigator*
01/06/2005–01/06/2007	**£275,000, WDA/KEF, VISTA** Professor Min Chen was principal investigator. Together with Phil Grant, we worked on an online virtual, scalable, automatic gallery for multimedia presentation. *Co-investigator*
30/04/2004–29/07/2007	**£148,251, EPSRC, Volume Animation** Professor Min Chen was principal investigator in Swansea, I was co-investigator. Other members of the consortium are Swansea (Shoukat Islam and Simon Walton, postgraduates) and Bath (Professor Phil Willis + 1 RA). Following on from our research in Volume Graphics, we took the next step towards real-time volume graphics animation. *Co-investigator*
01/05/2004–30/09/2005	**£15,000, ReachIn, MPhil student funding from ReachIn Haptics** Together with Professor Min Chen, we obtained £15K funding for an MPhil student to work on Haptic research. *Co-PI*
01/01/2004–31/12/2006	**£130,685, EPSRC, An Advanced Environment for Enabling Visual Supercomputing** Professor Min Chen was principal investigator in Swansea, I was co-investigator. Other members of the consortium were Swansea (David Chisnall and Nicolas Roard, postgraduates), Bangor (Professor Nigel John +2 postgrads), Leeds (Professor Ken Brodlie + 1 RA) and Manchester (Mark Riding, RA). *Co-investigator*

Research Grants (continued)

01/12/2000–30/11/2002	**£11,344, EPSRC, Modelling Objects Using Distance Fields (Voxelisation)** This was my second EPSRC grant, which was an equipment bid to support my research. *Principal Investigator*
31/03/1998–30/12/2001	**£51,423, EPSRC, Volume Graphics** This was my EPSRC "First Grant" now New Investigator Award. At the time, a first grant was around £50K covering funding for a 3 year PhD student. *Principal Investigator*

Research Publications

Patent

1. **M. Jones** and B. Spencer, "Rendering caustics in computer graphics with photon mapping by relaxation," Patent US 20120038644 A1, Feb. 17, 2010. URL: https://patentscope.wipo.int/search/en/detail.jsf?docId=US73485872.

Thesis

2. **M. W. Jones**, "The visualisation of regular three dimensional data," Ph.D. dissertation, University of Wales, University College of Swansea (Swansea University), Jul. 10, 1995.

Edited Special Issue and Conference Proceedings

3. X. Xie, **M. Jones**, and G. Tam, Eds., *Special Issue: Recognition, Tracking, and Optimisation*, vol. 122, 3, Springer, Mar. 23, 2017, pp. 409–410. DOI: 10.1007/s11263-017-1008-8.

4. X. Xie, **M. W. Jones**, and G. K. L. Tam, Eds., *Proceedings of the British Machine Vision Conference 7-10 September 2015*, Swansea, UK: BMVA Press, Sep. 7, 2015, ISBN: 1-901725-53-7. URL: https://bmva-archive.org.uk/bmvc/2015.

5. **M. W. Jones**, Ed., *TPCG '03: Proceedings of the 21st Theory and Practice of Computer Graphics 3-5 June 2003*, Birmingham, UK: IEEE Computer Society, Jun. 3, 2003, ISBN: 978-0-7695-1942-5. URL: https://www.computer.org/csdl/proceedings/tpcg/2003/12OmNCuDzt8.

6. **M. W. Jones**, Ed., *EGUK '02: Proceedings of the 20th Eurographics UK Conference 11-13 June 2002*, De Montfort University, Leicester, UK: IEEE Computer Society, Jun. 11, 2002, ISBN: 0-7695-1518-5. URL: https://www.computer.org/csdl/proceedings/eguk/2002/12OmNyfdOIf.

Journal Articles

7. K. W. Tesema, L. Hill, **M. W. Jones**, and G. K. L. Tam, "Denoising-while-completing network (DWCNet): Robust point cloud completion under corruption," *accepted for Computers & Graphics*, Sep. 2025.

8. T. Patel, **M. W. Jones**, and T. Redfern, "Leveraging convolutional and graph networks for an unsupervised remote sensing labelling tool," *arXiv preprint arXiv:2508.00506*, Aug. 1, 2025. DOI: 10.48550/arXiv.2508.00506.

9. J. M. Summers and **M. W. Jones**, "Impact of underwater image enhancement on feature matching," *arXiv preprint arXiv:2507.21715*, Jul. 29, 2025. DOI: 10.48550/arXiv.2507.21715.

10. F. Jiang, S. Yang, **M. W. Jones**, and L. Zhang, "From attributes to natural language: A survey and foresight on text-based person re-identification," *Information Fusion*, vol. 118, Jun. 2025. DOI: 10.1016/j.inffus.2024.102879.

11 K. W. Tesema, L. Hill, **M. W. Jones**, M. I. Ahmad, and G. K. Tam, "Point cloud completion: A survey," *IEEE Transactions on Visualization and Computer Graphics*, vol. 30, no. 10, pp. 6880–6899, Oct. 2024. DOI: 10.1109/TVCG.2023.3344935.

12 T. Patel, **M. W. Jones**, and T. Redfern, "Manifold explorer: Satellite image labelling and clustering tool with using deep convolutional autoencoders," *Algorithms*, vol. 16, no. 10, p. 469, Oct. 4, 2023, ISSN: 1999-4893. DOI: 10.3390/a16100469.

13 O. H. Nagoor, J. Whittle, J. Deng, B. Mora, and **M. W. Jones**, "Sampling strategies for learning-based 3D medical image compression," *Machine Learning with Applications*, vol. 8, p. 100 273, Jun. 15, 2022, ISSN: 2666-8270. DOI: 10.1016/j.mlwa.2022.100273.

14 M. Ali, R. Borgo, and **M. W. Jones**, "Concurrent time-series selections using deep learning and dimension reduction," *Knowledge-Based Systems*, vol. 233, p. 107 507, Dec. 5, 2021, ISSN: 0950-7051. DOI: 10.1016/j.knosys.2021.107507.

15 A. Alqahtani, M. Ali, X. Xie, and **M. W. Jones**, "Deep time-series clustering: A review," *Electronics*, vol. 10, no. 23, p. 3001, Dec. 2, 2021, ISSN: 2079-9292. DOI: 10.3390/electronics10233001.

16 A. Alqahtani, X. Xie, and **M. W. Jones**, "Literature review of deep network compression," *Informatics*, vol. 8, no. 4, p. 77, Nov. 17, 2021, ISSN: 2227-9709. DOI: 10.3390/informatics8040077.

17 A. Alqahtani, X. Xie, **M. W. Jones**, and E. Essa, "Pruning CNN filters via quantifying the importance of deep visual representations," *Computer Vision and Image Understanding*, vol. 208–209, p. 103 220, Jul. 2021, ISSN: 1077-3142. DOI: 10.1016/j.cviu.2021.103220.

18 M. Ali, A. Alqahtani, **M. W. Jones**, and X. Xie, "Clustering and classification for time series data in visual analytics: A survey," *IEEE Access*, vol. 7, no. 1, pp. 181 314–181 338, Dec. 10, 2019, ISSN: 2169-3536. DOI: 10.1109/ACCESS.2019.2958551.

19 M. Manduhu and **M. W. Jones**, "A work efficient parallel algorithm for exact Euclidean distance transform," *IEEE Transactions on Image Processing*, vol. 28, no. 11, pp. 5322–5335, Nov. 2019, ISSN: 1057-7149. DOI: 10.1109/TIP.2019.2916741.

20 D. Man, **M. W. Jones**, D. Li, H. Zhang, and Z. Song, "Calibration of turntable based 3D scanning systems," *IEICE Transactions on Information and Systems*, vol. E102-D, no. 9, pp. 1833–1841, Sep. 1, 2019. DOI: 10.1587/transinf.2019EDP7043.

21 M. Ali, **M. W. Jones**, X. Xie, and M. Williams, "TimeCluster: Dimension reduction applied to temporal data for visual analytics," *The Visual Computer*, vol. 35, no. 6, pp. 1013–1026, May 9, 2019, ISSN: 1432-2315. DOI: 10.1007/s00371-019-01673-y.

22 J. Dearden, Y. Gong, **M. Jones**, and A. Wilson, "Using the state space of a BLV retail model to analyse the dynamics and categorise phase transitions of urban development," *Urban Science*, vol. 3, no. 1, p. 31, Mar. 11, 2019, ISSN: 2413-8851. DOI: 10.3390/urbansci3010031.

23 J. Whittle, **M. W. Jones**, and R. Mantiuk, "Analysis of reported error in Monte Carlo rendered images," *The Visual Computer*, vol. 33, no. 6, pp. 705–713, Jun. 2017, ISSN: 1432-2315. DOI: 10.1007/s00371-017-1384-7.

24 J. Whittle, R. Borgo, and **M. W. Jones**, "Implementing generalized deep-copy in MPI," *PeerJ Computer Science*, vol. 2, no. 95, Nov. 21, 2016. DOI: 10.7717/peerj-cs.95.

25 R. P. Wilson, M. D. Holton, J. S. Walker, E. L. C. Shepard, D. M. Scantlebury, V. L. Wilson, G. I. Wilson, B. Tysse, M. Gravenor, J. Ciancio, M. A. McNarry, K. A. Mackintosh, L. Qasem, F. Rosell, P. M. Graf, F. Quintana, A. Gomez-Laich, J.-E. Sala, C. C. Mulvenna, N. J. Marks, and **M. W. Jones**, "A spherical-plot solution to linking acceleration metrics with animal performance, state, behaviour and lifestyle," *Movement Ecology*, vol. 4, no. 22, pp. 1–11, Sep. 23, 2016, ISSN: 2051-3933. DOI: 10.1186/s40462-016-0088-3.

26 J. Walker, R. Borgo, and **M. W. Jones**, "TimeNotes: A study on effective chart visualization and interaction techniques for time-series data," *IEEE Transactions on Visualization and Computer Graphics (Proceedings of Information Visualization 2015)*, vol. 22, no. 1, pp. 549–558, Jan. 31, 2016. DOI: 10.1109/TVCG.2015.2467751.

27 J. S. Walker, **M. W. Jones**, R. S. Laramee, M. D. Holton, E. L. C. Shepard, H. J. Williams, D. M. Scantlebury, Nikki, J. Marks, E. A. Magowan, I. E. Maguire, O. R. Bidder, A. Di Virgilio, and R. P. Wilson, "Prying into the intimate secrets of animal lives; Software beyond hardware for comprehensive annotation in 'Daily Diary' tags," *Movement Ecology*, vol. 3, no. 29, Sep. 21, 2015. DOI: 10.1186/s40462-015-0056-3.

28 O. R. Bidder, J. S. Walker, **M. W. Jones**, M. D. Holton, P. Urge, D. M. Scantlebury, N. J. Marks, E. A. Magowan, I. E. Maguire, and R. P. Wilson, "Step by step: Reconstruction of terrestrial animal movement paths by dead-reckoning," *Movement Ecology*, vol. 3, no. 23, Sep. 15, 2015. DOI: 10.1186/s40462-015-0055-4.

29 J. Dearden, **M. W. Jones**, and A. Wilson, "DynaMoVis: Visualization of dynamic models for urban modeling," *The Visual Computer*, vol. 31, no. 6–8, pp. 1079–1088, Jun. 2015, ISSN: 0178-2789. DOI: 10.1007/s00371-015-1096-9.

30 G. I. Wilson, M. D. Holton, J. Walker, **M. W. Jones**, E. Grundy, I. M. Davies, D. Clarke, A. Luckman, N. Russill, V. Wilson, R. Plummer, and R. P. Wilson, "A new perspective on how humans assess their surroundings; Derivation of head orientation and its role in 'framing' the environment," *PeerJ*, vol. 3, e908, Jun. 18, 2015. URL: https://doi.org/10.7717/peerj.908.

31 J. S. Walker, **M. W. Jones**, R. S. Laramee, O. R. Bidder, H. J. Williams, R. Scott, E. L. C. Shepard, and R. P. Wilson, "TimeClassifier: A visual analytic system for the classification of multi-dimensional time series data," *The Visual Computer*, vol. 31, no. 6–8, pp. 1067–1078, Jun. 1, 2015, ISSN: 0178-2789. DOI: 10.1007/s00371-015-1112-0.

32 B. Spencer, **M. W. Jones**, and I. S. Lim, "A visualisation tool used to develop new photon mapping techniques," *Computer Graphics Forum*, vol. 34, no. 1, pp. 127–140, Feb. 2015. DOI: 10.1111/cgf.12464.

33 S. A. Najim, I. S. Lim, P. Wittek, and **M. W. Jones**, "FSPE: Visualization of hyperspectral imagery using faithful stochastic proximity embedding," *IEEE Geoscience and Remote Sensing Letters*, vol. 12, no. 1, pp. 18–22, Jan. 2015, ISSN: 1545-598X. DOI: 10.1109/LGRS.2014.2324631.

34 R. Borgo, J. Dearden, and **M. W. Jones**, "Order of magnitude markers: An empirical study on large magnitude number detection," *IEEE Transactions on Visualization and Computer Graphics*, vol. 20, no. 12, pp. 2261–2270, Dec. 31, 2014, ISSN: 1077-2626. DOI: 10.1109/TVCG.2014.2346428.

35 P. A. Legg, D. H. S. Chung, M. L. Parry, R. Bown, **M. W. Jones**, I. W. Griffiths, and M. Chen, "Transformation of an uncertain video search pipeline to a sketch-based visual analytics loop," *IEEE Transactions on Visualization and Computer Graphics*, vol. 19, no. 12, pp. 2109–2118, Oct. 16, 2013, ISSN: 1077-2626. DOI: 10.1109/TVCG.2013.207.

36 D. M. Hughes, I. S. Lim, **M. W. Jones**, A. Knoll, and B. Spencer, "InK-Compact: In-Kernel stream compaction and its application to multi-kernel data visualization on general-purpose GPUs," *Computer Graphics Forum*, vol. 32, no. 6, pp. 178–188, Sep. 2013, ISSN: 1467-8659. DOI: 10.1111/cgf.12083.

37 T. McLoughlin, **M. W. Jones**, R. S. Laramee, R. Malki, I. Masters, and C. D. Hansen, "Similarity measures for enhancing interactive streamline seeding," *IEEE Transactions on Visualization and Computer Graphics*, vol. 19, no. 8, pp. 1342–1353, Aug. 2013, ISSN: 1077-2626. DOI: 10.1109/TVCG.2012.150.

38 I. C. Doidge and **M. W. Jones**, "Probabilistic illumination-aware filtering for Monte Carlo rendering," *The Visual Computer*, vol. 29, pp. 707–716, Jun. 2, 2013, ISSN: 0178-2789. DOI: 10.1007/s00371-013-0807-3.

39 B. Spencer and **M. W. Jones**, "Photon parameterisation for robust relaxation constraints," *Computer Graphics Forum*, vol. 32, no. 2pt1, pp. 83–92, May 7, 2013, ISSN: 1467-8659. DOI: 10.1111/cgf.12028.

40 B. Spencer and **M. W. Jones**, "2013 cover image: Prism," *Computer Graphics Forum*, vol. 32, no. 1, pp. 216–217, Feb. 21, 2013, ISSN: 1467-8659. DOI: 10.1111/cgf.12017.

41 B. Spencer and **M. W. Jones**, "Progressive photon relaxation," *ACM Trans. Graph.*, vol. 32, no. 1, 7:1–7:11, Jan. 2013. DOI: 10.1145/2421636.2421643.

42 I. Doidge, **M. W. Jones**, and B. Mora, "Mixing Monte Carlo and progressive rendering for improved global illumination," *The Visual Computer*, vol. 28, no. 6–8, pp. 603–612, Jun. 12, 2012, ISSN: 0178-2789. DOI: 10.1007/s00371-012-0703-2.

43 P. Legg, D. H. S. Chung, M. L. Parry, **M. W. Jones**, R. Long, I. W. Griffiths, and M. Chen, "MatchPad: Interactive glyph-based visualization for real-time sports performance analysis," *Computer Graphics Forum*, vol. 31, no. 3, pp. 1255–1264, Jun. 7, 2012. DOI: 10.1111/j.1467-8659.2012.03118.x.

44 J. Blaas, C. P. Botha, E. Grundy, **M. Jones**, R. S. Laramee, and F. H. Post, "Smooth graphs for visual exploration of higher-order state transitions," *IEEE Transactions on Visualization and Computer Graphics*, vol. 15, no. 6, pp. 969–976, Oct. 23, 2009, ISSN: 1077-2626. DOI: 10.1109/TVCG.2009.181.

45 E. Grundy, **M. W. Jones**, R. S. Laramee, R. P. Wilson, and E. F. Shepard, "Visualization of sensor data from animal movement," *Eurographics/ IEEE-VGTC Symposium on Visualization (Eurovis) 2009, Computer Graphics Forum*, vol. 28, no. 2, pp. 815–822, Jun. 10, 2009, ISSN: 0167-7055. DOI: 10.1111/j.1467-8659.2009.01469.x.

46 B. Spencer and **M. W. Jones**, "Into the blue: Better caustics through photon relaxation," *Eurographics 2009, Computer Graphics Forum*, vol. 28, no. 2, pp. 319–328, Mar. 30, 2009, ISSN: 0167-7055. DOI: 10.1111/j.1467-8659.2009.01371.x.

47 B. Spencer and **M. W. Jones**, "Computer graphics forum 2009 cover image," *Computer Graphics Forum*, vol. 28, no. 1, pp. 172–172, Feb. 23, 2009, ISSN: 1467-8659. DOI: 10.1111/j.1467-8659.2009.01415.x.

48 B. Spencer and **M. W. Jones**, "Hierarchical photon mapping," *IEEE Transactions on Visualization and Computer Graphics*, vol. 15, no. 1, pp. 49–61, Jan. 2009, ISSN: 1077-2626. DOI: 10.1109/TVCG.2008.67.

49 M. Chen, S. Islam, **M. W. Jones**, P. Shen, D. Silver, S. J. Walton, and P. J. Willis, "Manipulating, deforming and animating sampled object representations," *Computer Graphics Forum*, vol. 26, no. 4, pp. 824–852, Oct. 31, 2007, ISSN: 0167-7055. DOI: 10.1111/j.1467-8659.2007.01102.x.

50 **M. W. Jones**, A. Bærentzen, and M. Šrámek, "3D distance fields: A survey of techniques and applications," *IEEE Transactions on Visualization and Computer Graphics*, vol. 12, no. 4, pp. 581–599, Jul. 2006, ISSN: 1077-2626. DOI: 10.1109/TVCG.2006.56.

51 S. J. Walton and **M. W. Jones**, "Volume wires: A framework for empirical non-linear deformation of volumetric datasets," *Journal of WSCG*, vol. 14, no. 1–3, pp. 81–88, Jan. 31, 2006, ISSN: 1213-6972. URL: https://markwjones.github.io/files/2006_WSCG_Volume_Wires.pdf.

52 K. W. Brodlie, J. Brooke, M. Chen, D. Chisnall, A. Fewings, C. Hughes, N. W. John, **M. W. Jones**, M. Riding, and N. Roard, "Visual supercomputing – technologies, applications and challenges," *Computer Graphics Forum*, vol. 24, no. 2, pp. 217–245, Jun. 2005, ISSN: 0167-7055. DOI: 10.1111/j.1467-8659.2005.00845.x.

53 **M. W. Jones**, "Distance field compression," *Journal of WSCG*, vol. 12, no. 2, pp. 199–204, Feb. 3, 2004, ISSN: 1213-6972. URL: https://markwjones.github.io/files/2004_WSCG_DF_Compression.pdf.

54 T. Lewis and **M. W. Jones**, "A system for the non-linear modelling of deformable procedural shapes," *Journal of WSCG*, vol. 12, no. 2, pp. 253–260, Feb. 3, 2004, ISSN: 1213-6972. URL: https://markwjones.github.io/files/2004_WSCG_Clayworks.pdf.

55 **M. W. Jones**, "Melting objects," *Journal of WSCG*, vol. 11, no. 2, pp. 247–254, Feb. 3, 2003, ISSN: 1213-6972. URL: https://markwjones.github.io/files/2003_WSCG_Melting_Objects.pdf.

56 R. Satherley and **M. W. Jones**, "Hypertexturing complex volume objects," *The Visual Computer*, vol. 18, no. 4, pp. 226–235, Apr. 2002, ISSN: 0178-2789. DOI: 10.1007/s003710100143.

57 R. Satherley and **M. W. Jones**, "Vector-city vector distance transform," *Computer Vision and Image Understanding*, vol. 82, pp. 238–254, Jun. 2001, ISSN: 1077-3142. DOI: 10.1006/cviu.2001.0915.

58 R. Satherley and **M. W. Jones**, "Hypertexturing complex volume objects," *Journal of WSCG*, vol. 9, pp. 146–153, Feb. 6, 2001, ISSN: 1213-6972. URL: https://markwjones.github.io/files/2001_WSCG_Hypertexture.pdf.

59 **M. W. Jones**, "The production of volume data from triangular meshes using voxelisation," *Computer Graphics Forum*, vol. 15, no. 5, pp. 311–318, Dec. 1996, ISSN: 0167-7055. DOI: 10.1111/1467-8659.1550311.

60 M. Chen, **M. W. Jones**, and P. Townsend, "Volume distortion and morphing using disk fields," *Computers and Graphics*, vol. 20, no. 4, pp. 567–575, Jul. 1996, ISSN: 0097-8493. DOI: 10.1016/0097-8493(96)00027-1.

61 **M. W. Jones** and M. Chen, "A new approach to the construction of surfaces from contour data," *Computer Graphics Forum*, vol. 13, no. 3, pp. 75–84, Aug. 1994, ISSN: 1467-8659. DOI: 10.1111/1467-8659.1330075.

Conference Proceedings

62 F. Hepburn-Dickins, **M. W. Jones**, M. Edwards, J. P. Morgan, and S. Bell, "SIGNN – Star identification using graph neural networks," in *Proceedings of the Winter Conference on Applications of Computer Vision (WACV)*, Feb. 28, 2025, pp. 9045–9054. DOI: 10.1109/WACV61041.2025.00878.

63 A. Alqahtani, X. Xie, E. Essa, and **M. Jones**, "Neuron-based network pruning based on majority voting," in *2020 25th International Conference on Pattern Recognition (ICPR)*, Jan. 10, 2021, pp. 3090–3097. DOI: 10.1109/ICPR48806.2021.9412897.

64 O. Nagoor, J. Whittle, J. Deng, B. Mora, and **M. W. Jones**, "MedZip: 3D medical images lossless compressor using recurrent neural network (LSTM)," in *2020 25th International Conference on Pattern Recognition (ICPR)*, Jan. 10, 2021, pp. 2874–2881. DOI: 10.1109/ICPR48806.2021.9413341.

65 O. H. Nagoor, J. Whittle, J. Deng, B. Mora, and **M. W. Jones**, "Lossless compression for volumetric medical images using deep neural network with local sampling," in *2020 IEEE International Conference on Image Processing (ICIP)*, Oct. 25, 2020, pp. 2815–2819. DOI: 10.1109/ICIP40778.2020.9191031.

66 A. Alqahtani, X. Xie, J. Deng, and **M. W. Jones**, "Learning discriminatory deep clustering models," in *Computer Analysis of Images and Patterns, 18th International Conference, CAIP 2019, Salerno, Italy, September 3-5, 2019*, M. Vento and G. Percannella, Eds., Springer International Publishing, Sep. 3, 2019, pp. 224–233, ISBN: 978-3-030-29888-3. URL: https://markwjones.github.io/publications/2018_DeepCAE.html.

67 R. Colasanti, R. Borgo, and **M. W. Jones**, "Emoji and Chernoff – A fine balancing act or are we biased?" In *2019 IEEE Pacific Visualization Symposium (PacificVis)*, Apr. 23, 2019, pp. 102–111. DOI: 10.1109/PacificVis.2019.00020.

68 M. Ali, **M. W. Jones**, X. Xie, and M. Williams, "Towards visual exploration of large temporal datasets," in *2018 International Symposium on Big Data Visual and Immersive Analytics (BDVA)*, Oct. 17, 2018, pp. 1–9, ISBN: 978-1-5386-9194-6. DOI: 10.1109/BDVA.2018.8534025.

69 A. Alqahtani, X. Xie, J. Deng, and **M. W. Jones**, "A deep convolutional auto-encoder with embedded clustering," in *2018 IEEE International Conference on Image Processing (ICIP)*, Oct. 7, 2018, pp. 4058–4062. DOI: 10.1109/ICIP.2018.8451506.

70 J. Whittle and **M. W. Jones**, "A deep learning approach to no-reference image quality assessment for monte carlo rendered images," in *Computer Graphics and Visual Computing (CGVC) 2018*, Sep. 13, 2018, pp. 23–31. DOI: 10.2312/cgvc.20181204.

71 O. H. Nagoor, R. Borgo, and **M. W. Jones**, "Data Painter: A tool for colormap interaction," in *Computer Graphics and Visual Computing (CGVC)*, T. R. Wan and F. Vidal, Eds., The Eurographics Association, Sep. 14, 2017, pp. 69–76, ISBN: 978-3-03868-050-5. DOI: 10.2312/cgvc.20171280.

72 D. Li, H. Zhang, Z. Song, D. Man, and **M. W. Jones**, "An automatic laser scanning system for accurate 3D reconstruction of indoor scenes," in *2017 IEEE International Conference on Information and Automation (ICIA)*, Jul. 2017, pp. 826–831. DOI: 10.1109/ICInfA.2017.8079017.

73 R. C. Roberts, R. S. Laramee, and **M. W. Jones**, "Multivariate hybrid visualisation of ornithological sensor data," in *Computer Graphics and Visual Computing (CGVC)*, R. Borgo and C. Turkay, Eds., The Eurographics Association, Sep. 16, 2015, pp. 1–6. DOI: 10.2312/cgvc.20151233.

74 J. Walker, Z. Geng, **M. W. Jones**, and R. S. Laramee, "Visualization of large, time-dependent, abstract data with integrated spherical and parallel coordinates," in *EuroVis - Short Papers*, M. Meyer and T. Weinkauf, Eds., Jun. 6, 2012, pp. 43–47. DOI: 10.2312/PE/EuroVisShort/EuroVisShort2012/043-047.

75 T. McLoughlin, M. Edmunds, R. S. Laramee, **M. W. Jones**, G. Chen, and E. Zhang, "Using integral surfaces to visualize CFD simulation results," in *A World of Engineering Simulation: NAFEMS World Congress 2011, NWC 2011; May 23–26, Boston, Mass., USA*, May 23, 2011, 100:1–100:9. URL: https://markwjones.github.io/files/2011_NAFEMS_Integral_Surfaces.pdf.

76 S. Walton and **M. W. Jones**, "Interacting with volume data: Deformations using forward-projection," in *Fourth International Conference Medical Information Visualisation – BioMedical Visualisation (MediVis 2007)*, G. Clapworthy and C. Moore, Eds., IEEE, Jul. 4, 2007, pp. 48–53, ISBN: 0-7695-2904-6. DOI: 10.1109/MEDIVIS.2007.12.

77 K. W. Brodlie, J. Brooke, M. Chen, D. Chisnall, C. J. Hughes, N. W. John, **M. W. Jones**, M. Riding, N. Roard, M. Turner, and J. D. Wood, "Adaptive infrastructure for visual computing," in *Theory and Practice of Computer Graphics*, Jun. 13, 2007, pp. 147–156. DOI: 10.2312/LocalChapterEvents/TPCG/TPCG07/147-156.

78 N. Roard and **M. W. Jones**, "Agents based visualization and strategies," in *Full Papers Proceedings of WSCG*, Jan. 30, 2006, pp. 63–70, ISBN: 80-86943-03-8. URL: https://markwjones.github.io/files/2006_WSCG_Agent_Based_Vis.pdf.

79 M. Chen, S. Islam, **M. W. Jones**, P. Shen, D. Silver, S. J. Walton, and P. J. Willis, "Deforming and animating discretely sampled object representations," in *Eurographics 2005, STAR Reports*, The Eurographics Association, Aug. 29, 2005, pp. 113–140. DOI: 10.2312/egst.20051047.

80 C. Miller and **M. W. Jones**, "Texturing and hypertexturing of volumetric objects," in *Volume Graphics 2005*, E. Gröller, I. Fujishiro, K. Mueller, and T. Ertl, Eds., Eurographics, Jun. 20, 2005, pp. 117–125, ISBN: 3-905673-26-6. DOI: 10.2312/VG/VG05/117-125.

81 K. W. Brodlie, J. Brooke, M. Chen, D. Chisnall, A. Fewings, C. Hughes, N. W. John, **M. W. Jones**, M. Riding, and N. Roard, "Visual supercomputing – technologies, applications and challenges," in *Eurographics 2004, STAR Reports*, Eurographics Association, Aug. 30, 2004, pp. 37–68. DOI: 10.2312/egst.20041025.

82 **M. W. Jones**, "Facial reconstruction using volumetric data," in *Vision, Modeling, and Visualization (VMV'01), Stuttgart, Germany*, T. Ertl, B. Girod, G. Greiner, H. Niemann, and H.-P. Seidel, Eds., IOS Press, Nov. 21, 2001, pp. 135–142, ISBN: 1-58603-221-6. URL: https://markwjones.github.io/files/2001_VMV_Facial_Reconstruction.pdf.

83 S. M. F. Treavett, M. Chen, R. Satherley, and **M. W. Jones**, "Volumes of expression: Artistic modelling and rendering of volume datasets," in *Computer Graphics International 2001 (CGI'01), July 3–6, 2001, Hong Kong, China, Proceedings*, H. H.-S. Ip, N. Magnenat-Thalmann, R. W. H. Lau, and T.-S. Chua, Eds., IEEE Computer Society, Jul. 3, 2001, pp. 99–106. DOI: 10.1109/CGI.2001.934663.

84 **M. W. Jones** and R. Satherley, "Shape representation using space filled sub-voxel distance fields," in *SMI 2001 International Conference on Shape Modelling and Applications*, IEEE Computer Society Press, May 7, 2001, pp. 316–325, ISBN: 0-7695-0853-7. DOI: 10.1109/SMA.2001.923403.

85 **M. W. Jones** and R. Satherley, "Using distance fields for object representation and rendering," in *19th Annual Conference of Eurographics (UK Chapter), London*, Apr. 3, 2001, pp. 37–44, ISBN: 0-9540321-0-1. URL: https://markwjones.github.io/files/2001_EGUK_DFs_Object_Rep.pdf.

86 **M. W. Jones** and R. Satherley, "Voxelisation: Modelling for volume graphics," in *Proceedings of the 2000 Conference on Vision Modeling and Visualization (VMV-00), Saarbrücken, Germany, November 22–24, 2000*, B. Girod, G. Greiner, H. Niemann, and H.-P. Seidel, Eds., IOS Press, Nov. 22, 2000, pp. 319–326, ISBN: 978-1-58603-104-6. URL: https://markwjones.github.io/files/2000_VMV_Voxelization.pdf.

87 **M. W. Jones**, "Direct surface rendering of general and genetically bred implicit surfaces," in *17th Annual Conference of Eurographics (UK Chapter), Cambridge*, Apr. 13, 1999, pp. 37–46, ISBN: 0-9521097-8-6. URL: https://markwjones.github.io/files/1999_EGUK_Genetic_Surfaces.pdf.

88 **M. W. Jones**, "An efficient shadow detection algorithm and the direct surface rendering volume visualisation model," in *15th Annual Conference of Eurographics (UK Chapter), Norwich*, Mar. 26, 1997, pp. 237–244, ISBN: 0-9521097-6-X. URL: https://markwjones.github.io/files/1997_EGUK_Rendering_Shadows.pdf.

89 T. Simpson and **M. W. Jones**, "Space subdivision of finite element meshes," in *15th Annual Conference of Eurographics (UK Chapter), Norwich*, Mar. 26, 1997, pp. 13–20, ISBN: 0-9521097-6-X. URL: https://markwjones.github.io/files/1997_EGUK_Space_Subdivision_for_FEMs.pdf.

90 **M. W. Jones**, "Volume rendering using view adapted stepping distances," in *BCS Displays Group – Visualisation and Modelling, University of Leeds*, Dec. 6, 1995. DOI: 10.5281/zenodo.14186166.

91 **M. W. Jones**, "Voxelisation of polygonal meshes," in *13th Annual Conference of Eurographics (UK Chapter), Loughborough*, Mar. 28, 1995, pp. 160–171.

92 **M. W. Jones** and M. Chen, "Fast cutting operations on three dimensional volume datasets," in *Visualization in Scientific Computing*, M. Göbel, H. Müller, and B. Urban, Eds., Springer-Verlag Berlin, May 30, 1994, pp. 1–8, ISBN: 3-211-82633-5. URL: https://doi.org/10.5281/zenodo.14173363.

Tech Reports

93 **M. W. Jones**, "3D distance from a point to a triangle," Swansea University, CSR-5-95, Feb. 1, 1995. URL: https://zenodo.org/records/14173321.

Books and Chapters

94 R. Satherley and **M. W. Jones**, "Hybrid distance field computation," in *Volume Graphics 2001*, ser. Eurographics, K. Mueller and A. E. Kaufman, Eds., Springer Vienna, Oct. 8, 2001, pp. 195–209, ISBN: 978-3-211-83737-5. DOI: 10.1007/978-3-7091-6756-4_13.

95 R. Satherley and **M. W. Jones**, "Extending hypertextures to non-geometrically definable volume data," in *Volume Graphics*, M. Chen, A. E. Kaufman, and R. Yagel, Eds., Springer London, Mar. 8, 2000, pp. 211–225, ISBN: 978-1-85233-192-4. DOI: 10.1007/978-1-4471-0737-8_13.

96 **M. W. Jones**, "Acceleration techniques for volume rendering," in *Visualization and Modeling*, R. Earnshaw, H. Jones, and J. Vince, Eds., London: Academic Press, May 6, 1997, pp. 253–286, ISBN: 0-12-2277384. DOI: 10.5281/zenodo.14175593.

97 **M. W. Jones**, "Glossary," in *High Performance Computing for Computer Graphics and Visualisation*, M. Chen, P. Townsend, and J. A. Vince, Eds., Springer London, Jul. 4, 1995, pp. 277–287, ISBN: 978-3-540-76016-0. URL: https://markwjones.github.io/files/1995_HPCGV_Glossary.pdf.

98 M. Chen, **M. W. Jones**, and P. Townsend, "Methods for volume metamorphosis," in *Image Processing for Broadcast and Video Production*, ser. Workshops in Computing, Y. Paker and S. Wilbur, Eds., Springer London, Nov. 23, 1994, pp. 280–292, ISBN: 978-3-540-19947-2. DOI: 10.1007/978-1-4471-3035-2_24.

Teaching

FHEA Fellow of the Higher Education Academy.

Teaching videos https://www.youtube.com/@cs-255/videos.

Experience Over 30 years of expertise teaching university courses at years 1, 2, 3 and M, mainly Visual Computing and related courses, Data Structures and Databases. Excellent student feedback, ranking amongst the highest in the Department:

> *"[Computer Graphics] was a great module with a lot to be learned (a lot more than I thought initially). The material was always of high quality, with live examples being shown in lectures and Mark always staying in past the lecture end to answer our questions even if they weren't directly related to the content we were taught."*

Research Supervision

Completed PhD Students (12)	Tom Simpson, Richard Satherley, Chris Miller, Simon Walton, Nicolas Roard, Ben Spencer, Ian Doidge, James Walker, Joss Whittle, Mohammed Ali, Omniah Nagoor, Tulsi Patel.
Current PhD Students (3)	Floyd Hepburn-Dickins, Jason Summers, Jonathan Davies (with Gibin Powathil).
Completed MPhil Students (3)	Tim Lewis, Chris Whyley, Matt Parry.
Completed MRes Students (1)	Ed Grundy.
Past RAs (4)	Ben Spencer, Joel Dearden, ManDuhu, Ric Colasanti, Safa Najm.

External Examiner

PhD Students (8)	University of Catalunya, Barcelona, Bangor (2), Sheffield, Warwick (2), KCL, Durham.
MSc by research (2)	Leeds, Kent.