James Tompkin

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I am a graphics, vision, and human-computer interaction researcher who investigates how new techniques in visual computing can remove barriers from the creative process and help organize the world's visual information.

Education

2012 EngD Virtual Environments, Imaging, and Visualisation, University College London.
Supervisor: Prof. Jan Kautz.
Thesis: Exploring Sparse Unstructured Video Collections of Places.
Sponsor: BBC Research & Development.

2006 MSci Computer Science, First Class with Honours, King's College London.
Supervisor: Prof. Ian Mackie.
Dissertation: Venues—A Networked Visual Instrument.
Awarded prize for best MSci dissertation.

Research Experience

2016–now Assistant Professor, Computer Science, Brown University.

2014–2016 Post-doctoral Researcher, Harvard John A. Paulson School of Engineering and Applied Sciences.

2014–2016 Research Spin-off Consultant, IT Inkubator GmbH.

2012–2014 Post-doctoral Researcher, Max-Planck-Institute for Informatics.
Sponsored by the Intel Visual Computing Institute.

2012–2013 Research Consultant, Disney Research Boston.

2011–2012 Research Intern, Disney Research Boston.

2006 Research Intern, BBC Research & Development.

Publications—Peer-reviewed Journals

2016 Micha Schwab, Hendrik Strobelt, James Tompkin, Colin Fredericks, Connor Huff, Dana Higgins, Anton Strezhnev, Maya Komisarchik, Gary King, Hanspeter Pfister. booc.io: An Education System with Hierarchical Concept Maps and Dynamic Non-linear Learning Plans. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS).*

2015 Helge Rhodin, James Tompkin, Kwang In Kim, Edilson de Aguiar, Hans-Peter Seidel, Christian Theobalt. Generalizing Wave Gestures from Sparse Examples for Real-time Character Control. *ACM Transactions on Graphics (SIGGRAPH Asia).*

- Nicolas Bonneel, James Tompkin, Kalyan Sunkavalli, Deqing Sun, Sylvain Paris, Hanspeter Pfister. Blind Video Temporal Consistency. *ACM Transactions on Graphics (SIGGRAPH Asia).*
- Gaurav Bharaj, David I. W. Levin, James Tompkin, Yun Fei, Hanspeter Pfister, Wojciech Matusik, Changxi Zheng. Computational Design of Metallophone Contact Sounds. *ACM Transactions on Graphics (SIGGRAPH Asia).*

2014 Nicolas Bonneel, Kalyan Sunkavalli, James Tompkin, Deqing Sun, Sylvain Paris, Hanspeter Pfister. Interactive Intrinsic Video Editing. *ACM Transactions on Graphics (SIGGRAPH Asia).*

- Younghee Kwon, Kwang In Kim, James Tompkin, Jin Hyung Kim, and Christian Theobalt. Efficient Learning of Image Super-resolution and Compression Artifact Removal with Semi-local Gaussian Processes. *IEEE Transactions on Pattern Analysis and Machine Intelligence*.

Publications—Peer-reviewed Journals (Continued)

2014 Helge Rhodin, James Tompkin, Kwang In Kim, Kiran Varanasi, Hans-Peter Seidel, Christian Theobalt. Interactive Motion Mapping for Real-time Character Control. *Computer Graphics Forum (Eurographics).*

2013 James Tompkin, Simon Heinzle, Jan Kautz, Wojciech Matusik. Content-adaptive Lenticular Prints. *ACM Transactions on Graphics (SIGGRAPH).*

- James Tompkin, Min H. Kim, Kwang In Kim, Jan Kautz, Christian Theobalt. Preference and Artifact Analysis for Video Transitions of Places. *ACM Transactions on Applied Perception.*
- Miguel Granados, Kwang In Kim, James Tompkin, Christian Theobalt. Automatic Noise Modelling for Ghost-free HDR Reconstruction. *ACM Transactions on Graphics (SIGGRAPH Asia).*

2012 James Tompkin, Kwang In Kim, Jan Kautz, Christian Theobalt. Videoscapes: Exploring Sparse, Unstructured Video Collections. *ACM Transactions on Graphics (SIGGRAPH).*

- Miguel Granados, James Tompkin, Kwang In Kim, Oliver Grau, Jan Kautz, Christian Theobalt. How Not to Be Seen—Object Removal from Videos of Crowded Scenes. *Computer Graphics Forum (Eurographics).*
- Henrik Lieng, James Tompkin, Jan Kautz. Interactive Multi-perspective Imagery from Photos and Videos. *Computer Graphics Forum (Eurographics).*

2011 Feng Xu, Yebin Liu, Carsten Stoll, James Tompkin, Gaurav Bharaj, Qionghai Dai, Hans-Peter Seidel, Jan Kautz, and Christian Theobalt. 2011. Video-based Characters: Creating New Human Performances from a Multi-view Video Database. *ACM Transactions on Graphics (SIGGRAPH).*

Publications—Peer-reviewed Conferences

2016 Evgeny Levinkov, James Tompkin, Nicolas Bonneel, Steffen Kirchhoff, Bjoern Andres, Hanspeter Pfister. Interactive Multicut Video Segmentation. *Pacific Graphics (Short Paper).*

2015 James Tompkin, Samuel Muff, James McCann, Hanspeter Pfister, Jan Kautz, Marc Alexa, Wojciech Matusik. Joint 5D Pen Input for Light Field Displays. *ACM User Interface Software and Technology (UIST).*

- Gaurav Bharaj, Stelian Coros, Bernhard Thomaszewski, James Tompkin, Bernd Bickel, Hanspeter Pfister. Computational Design of Walking Automata. *ACM Symposium on Computer Animation (SCA).*
- Kwang In Kim, James Tompkin, Hanspeter Pfister, Christian Theobalt. Context-guided Diffusion for Label Propagation on Graphs. *IEEE International Conference on Computer Vision (ICCV).*
- Kwang In Kim, James Tompkin, Hanspeter Pfister, Christian Theobalt. Local High-order Regularization on Data Manifolds. *IEEE Computer Vision and Pattern Recognition (CVPR).*
- Kwang In Kim, James Tompkin, Hanspeter Pfister, Christian Theobalt. Semi-supervised Learning with Explicit Relationship Regularization. *IEEE Computer Vision and Pattern Recognition (CVPR).*

2014 Fabrizio Pece, James Tompkin, Hanspeter Pfister, Jan Kautz, Christian Theobalt. Device Effect on Panoramic Video+Context Tasks. *11th European Conference on Visual Media Production (CVMP).*

2013 James Tompkin, Fabrizio Pece, Rajvi Shah, Shahram Izadi, Jan Kautz, Christian Theobalt. Video Collections in Panoramic Contexts. *ACM User Interface Software and Technology (UIST).*

- Kwang In Kim, Martin Theobald, James Tompkin, Christian Theobalt. Curvature-aware Regularization on Riemannian Submanifolds. *IEEE International Conference on Computer Vision (ICCV).*

2012 Philippe Levieux, James Tompkin, Jan Kautz. Interactive Viewpoint Video Textures. *9th European Conference on Visual Media Production (CVMP).*

- Kwang In Kim, James Tompkin, Martin Theobald, Jan Kautz, Christian Theobalt. Match Graph Construction for Large Image Databases. *European Conference on Computer Vision (ECCV).*
- Miguel Granados, Kwang In Kim, James Tompkin, Jan Kautz, Christian Theobalt. Background Inpainting for Videos with Dynamic Objects and a Free-moving Camera. *European Conference on Computer Vision (ECCV).*

Publications—Peer-reviewed Conferences (Continued)

2011 James Tompkin, Fabrizio Pece, Kartic Subr, Jan Kautz. Towards Moment Imagery: Automatic Cinemagraphs. *8th European Conference on Visual Media Production (CVMP).*

\- Beste F. Yuksel, Michael Donnerer, James Tompkin and Anthony Steed. Novel P300 BCI Interfaces to Directly Select Physical and Virtual Objects. *5th International Brain-computer Interface Conference (BCI).*

2010 Beste F. Yuksel, Michael Donnerer, James Tompkin, and Anthony Steed. A Novel Brain-computer Interface using a Multi-touch Surface. *ACM Conference on Human Factors in Computing Systems (CHI).*

2009 Jennifer G. Sheridan, James Tompkin, Abel Maciel, and George Roussos. DIY Design Process for Interactive Surfaces. *23rd Conference on Human Computer Interaction (HCI).*

Grants & Grant Writing Experience

2014–2015 *Administrating:* NSF IIS-1110955, NSF 1116619, and DARPA Memex, *With Hanspeter Pfister*.

2015 *Assisting:* EPSRC EP/M00533X/1—Personalized exploration of imagery databases, *With Kwang In Kim*.

2012 Intel Visual Computing Institute, User-centric Video Processing, 4 year post-doc funding.

2011 UCL EngD VEIV Advance Scholarship, Partial doctoral funding.

Teaching Experience

2016 Fall Advanced Computer Vision, graduate seminar. Brown University.

2014 – now Education research and development, booc.io. Harvard Paulson School.
New non-linear online learning platform for HarvardX, in collaboration with Prof. Gary King.

2015–2016 Senior Teaching Fellow, Visualization. 240 undergraduate and online students. Harvard Paulson School.

2015 Co-instructor, User-centric Computational Videography, SIGGRAPH course.

2013 Co-lecturer, Computer Vision for Computer Graphics. Graduate seminar course. MPI für Informatik.

2008–2011 Lecturer, Multimedia Computing, on Video Systems. University College London.

2007–2011 Teaching Fellow, Advanced Modeling, Rendering, and Animation. University College London.

Mentorship & Co-supervision

2014–now PhD, Gaurav Bharaj, Daniel Haehn, Steffen Kirchhoff, Harvard Paulson School.

2012–2013 PhD vistiors, Rajvi Shah (IIIT Hyderabad), Brojeshwar Bhowmick (IIT Delhi), MPI für Informatik.

2010–2012 MSc, Henrik Lieng (Assistant Professor, Oslo and Akershus University College of Applied Sciences), Beste Yuksel (PhD student, Tufts University), Phillippe Levieux (Yooshr Ltd. spin-off), University College London.

Academic Activities

Programme Committee, Pacific Graphics 2015–2016, CAD/Graphics 2015, CVMP 2012–2016.

Reviewer, *Graphics:* SIGGRAPH + Asia, ToG, Eurographics, Pacific Graphics, CGF, EGSR, TVCG, CAG, VMV. *HCI:* SIGCHI, UIST. *Multimedia:* TIP, TCSVT, CVMP, MUM, CACH. *VR/AR:* ISMAR, PRESENCE.

Patents, Pending: WO 2013167157 A1, US 20140146388 A1.

2008–2010 Computer Graphics Reading Group, Founder, University College London.

2005–2006 Staff-student Committee, King's College London.
Awarded prize for outstanding contribution as a student representative.

Exhibitions & Installations

2015 – 2016 Museum of the Moving Image, *New York, USA*, Rear Window Augmented, with Jeff Desom.
Spatio-temporally exploring Hitchcock's Rear Window through synchronized augmented and virtual realities.

Exhibitions & Installations (Continued)

2015 Assembly, *Harvard University*, Rear Window Augmented.
2015 UIST Demonstrations, Interactive Light Field Painting.
2014 ISCP, *New York, USA*, Rear Window Augmented.
2014 Festival Imaginales, *Epinal, France*, Rear Window Augmented.
2014 Luxembourg Film Festival, Rear Window Augmented.
2013 UIST Demonstrations, Vidicontexts System.
2012 SIGGRAPH Emerging Technologies, Interactive Light Field Painting.
2008 Digital Cities: London's Future, *The Building Centre, London*, Multi-touch Adaptive Architecture.
2007 Capture & Context, *Bartlett School of Architecture, London*, Omnidirectional Video Environments.