

Tim Hutton

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Qualifications:	<p>PhD: ‘Dense Surface Models of the Human Face’, University College London (UCL). Awarded: July 2004. http://www.sq3.org.uk/papers/phd_thesis.pdf</p> <p>MRes (distinction) in ‘Computer Vision, Image Processing, Graphics and Simulation’ from UCL. Awarded: Sept 1998.</p> <p>BSc (2:1) in Computer Science from Warwick University. Awarded: July 1997.</p>
Skills:	<p>Research: Machine Learning (Reinforcement Learning, Deep Neural Networks, Convolutional Neural Networks, Support Vector Machines, Regression Forests), Computer Vision (Deformable Models, Camera Calibration, Graphics).</p> <p>Programming: C++ (20 years) on Windows, Linux and MacOS; Developed for Xbox and Android platforms; OpenCV (computer vision toolkit); OpenCL; VTK (3D visualisation and algorithms library); Matlab; Javascript; wxWidgets (GUI framework); Arduino (hardware-software interface); Python; Java; Lua; Torch; CMake.</p>
Experience:	<ul style="list-style-type: none">• April 2015 – present: Consultant, Microsoft Research Cambridge. Developed Project Malmo, an AI research platform on top of Minecraft.• June 2014 – March 2015: Computer Vision Consultant, Microsoft Research Cambridge. Depth camera calibration for HoloLens. Working with Andrew Fitzgibbon.• Jan 2013 – Feb 2014: Computer Vision Consultant, Microsoft Rare. Developed the skin color and hair color detection solutions (C++, XBox One) for Kinect Sports Rivals, using 2D and 3D face-tracked data from the Xbox One Kinect sensor.• Jan 2006 – Nov 2012: Research and Tools Programmer, Eurocom Entertainment Software. Providing tools solutions to a wide variety of problems, including dealing with 3D face scans, motion capture data and animation. Major solutions delivered: 1) Developed the company's facial mocap tracking solution, fitting blendshapes to mocap markers. This solution (C++, VTK, wxWidgets) was used on all of their games in this period, including Pirates of the Caribbean, James Bond and Harry Potter titles. 2) A silhouette extraction and encoding technique for populating a disco scene, converting video to 2D polygons. (Python, VTK) 3) Developed a walk-in controlled-lighting sphere for capturing normal maps and

	<p>3D face scans. (Arduino, OpenCV, VTK) Involved camera calibration, stereo reconstruction and mesh processing.</p> <ul style="list-style-type: none"> • Sept 1998 – Nov 2004: Research Fellow, Biomedical Informatics Unit, Eastman Dental Institute, University College London. Medical image processing and computer vision research, including completion of a PhD part-time. I created a set of algorithms for 3D face modelling which formed the basis of the group's work on genetic facial dysmorphology and surgery simulation. This work received funding from the NIH, the Birth Defects Foundation and the DTI, and culminated in a paper in Science. • July 97 – Sept. 98 with the Imperial Cancer Research Fund, creating a 4D image analysis package as part of my MRes. (Metrowerks CodeWarrior C++ under MacOS) • Sept. 93 – July 94 with Dacos Software GmbH, Saarbrucken, Germany as an internal applications developer. (Borland Turbo C under MSDOS)
<p>Open source projects:</p>	<p>Contributor to: VTK (vtk.org), Golly (golly.sourceforge.net).</p> <p>Started: Ready (https://github.com/GollyGang/ready) – a cross-platform numerical simulation of reaction-diffusion pattern formation on images and 3D meshes. Mentioned recently in a New Scientist article.</p>
<p>Mobile Apps:</p>	<p>“Living Physics” on Google Play. A chemical puzzle game with 33,000 installs.</p>
<p>Selected papers:</p> <p>(16 journal papers, 1216 citations, h-index = 16)</p>	<ul style="list-style-type: none"> • Tassabehji M., Hammond P., Karmiloff-Smith A., Thompson P., Thorgeirsson S.S., Durkin M.E., Popescu N.C., Hutton T.J., Metcalfe K., Rucka A., Stewart H., Read A.P., Maconochie M., and Donnai D. (2005) GTF2IRD1 in Craniofacial Development of Humans and Mice. Science 310(5751):1184-7. (Cited 157 times.) • Hammond P., Hutton T.J., Allanson J.E., Buxton B., Campbell L.E., Clayton-Smith J., Donnai D., Karmiloff-Smith A., Metcalfe K., Murphy K.C., Patton M., Pober B., Prescott K., Scambler P., Shaw A., Smith A.C.M., Stevens A.F., Temple K., Hennekam R., and Tassabehji M. (2005) Discriminating Power of Localized 3D Facial Morphology. American Journal of Human Genetics 77(6): 999-1010. (Cited 114 times.) • Hammond P., Hutton T.J., Allanson J.E., Campbell L.E., Hennekam R.C.M., Holden S., Murphy K.C., Patton M.A., Shaw A., Temple I.K., Trotter M., Winter R.M. (2004) 3D Analysis of Facial Morphology. American Journal of Medical Genetics Part A 126(4): 339-348. (Cited 168 times.)