

## *Tim Hutton*

<b>Full name:</b>	Timothy James Hutton
<b>Age in Dec. '05:</b>	30 (date of birth: 28/10/1975)
<b>Home address:</b>	on request
<b>Tel:</b>	on request
<b>Email:</b>	tim.hutton@gmail.com
<b>Qualifications:</b>	<b>PhD:</b> 'Dense Surface Models of the Human Face', University College London (UCL). Studied part-time, awarded: July 2004
	<b>MRes (distinction)</b> in 'Computer Vision, Image Processing, Graphics and Simulation' from UCL. Awarded: Sept 1998
	<b>BSc (2:1)</b> in Computer Science from Warwick University. Awarded: July 1997. <b>A-Levels:</b> Maths (A), Physics (A), Further Maths AS (A) and Business Studies (B). <b>GCSEs:</b> 8 A's and 3 B's.
<b>Experience:</b>	<ul style="list-style-type: none"><li>• Oct. 05 – present: Honorary Research Fellow, Bioscience Computing, UCL. Research into evolvable systems, using novel forms of self-replicating structures in artificial chemistries. Research Coordinator for the group.</li><li>• Sept. 98 – Nov. 04: Research Fellow, Biomedical Informatics Unit, Eastman Dental Institute, UCL. Medical image processing and computer vision research, including completion of a PhD part-time. I created a novel algorithm (Dense Surface Models) 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. The software suite I developed for the project (MSVC++, VTK, MFC) is in constant use within the group.</li><li>• 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)</li><li>• Summer holidays 94-96 with Stroud Microcomputers, Glos., developing applications for PCs and hand-held devices. (Borland Turbo C under MSDOS)</li><li>• Sept. 93 – July 94 with Dacos Software GmbH, Saarbrucken, Germany as an internal applications developer. (Borland Turbo C under MSDOS)</li></ul>
<b>Skills:</b>	C++, MFC, VTK (ranked #31 developer on the CVS report), Java.
<b>Membership:</b>	ISAL, IEEE (lapsed)

**Publications:** (most can be found at: <http://www.sq3.org.uk>)

Journal papers:

- Hutton T.J. (2006) *Evolvable Self-Reproducing Cells in a Two-Dimensional Artificial Chemistry*. Artificial Life (to appear).
- 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.
- 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.
- Todd S.-A., Hammond P., Hutton T.J., Cochrane S. and Cunningham S. (2005) *Perceptions of Facial Aesthetics in Two and Three Dimensions*. European Journal of Orthodontics 27(4): 363-369.
- 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.
- Hutton T.J., Buxton B.F., Hammond P., Potts H.W.W. (2003) *Estimating Average Growth Trajectories in Shape-Space using Kernel Smoothing*. IEEE Transactions on Medical Imaging 22(6): 747-753.
- Hammond P., Hutton T.J., Maheswaran S., Modgil S. (2003) *Computational Models of Oral and Craniofacial Development, Growth and Repair*. Adv Dent Res 17: 61-64.
- Hutton, T.J. (2002) *Evolvable Self-Replicating Molecules in an Artificial Chemistry*. Artificial Life 8(4): 341-356.
- Modgil S., Hutton T.J., Hammond P., Davenport J.C. (2002) *Combining Biometric and Symbolic Models for Customised, Automated Prosthesis Design*. Artificial Intelligence in Medicine 25: 227-245.
- Hammond P., Hutton T.J., Nelson-Moon Z.L., Hunt N. and Madgwick A.J.A. (2001) *Classifying Vertical Facial Deformity using Supervised and Unsupervised Learning*. Methods of Information in Medicine 40: 365-372.
- Hutton T.J., Cunningham S., Hammond P. (2000) *An Evaluation of Active Shape Models for the Automatic Identification of Cephalometric Landmarks*. European Journal of Orthodontics 22(5): 499-508.

Refereed conference papers:

- Hutton T.J. (2005) *Replicators That Make All Their Own Rules*. Proc. Workshop on Artificial Chemistry and Its Applications (ACA), Part of ECAL 2005 - 8th European Conference on Artificial Life.

- Hutton T.J. (2004) *A Functional Self-Reproducing Cell in a Two-Dimensional Artificial Chemistry*. In: Pollack, J. et al. (Eds.) Proc. Ninth International Conference on Artificial Life: 444-449.
- Hutton T.J. (2004) *Making Membranes in Artificial Chemistries*. In: Bedau, M. et al. (Eds.) Proc. Workshops at Ninth International Conference on Artificial Life.
- Hutton T.J., Buxton B.F., Hammond P. (2003) *Automated Registration of 3D Faces using Dense Surface Models*. In: Harvey R. and Bangham J.A. (Eds.), Proceedings of the British Machine Vision Conference, Norwich. pp. 439-448.
- Hammond P., Hutton T.J., Maheswaran S., Modgil S. (2003) *Computational models of oral and craniofacial development, growth and repair*. In: Proc. Dental Informatics and Dental Research: making the connection. NIH, Bethesda, MD, USA.
- Hammond P., Hutton T.J., Shaw A., Temple I.K., Hennekam R.C.M., Winter R.M., Patton M.A., Allanson J.E. (2003) *Modelling Facial Form and Growth in Noonan Syndrome in 3D*. D.W. Smith Meeting on Malformation and Morphogenesis, UBC, Vancouver, Canada, August 2003.
- Hutton T.J. (2003) *Simulating Evolution's First Steps*. In: Banzhaf W., Christaller T., Dittrich P., Kim J.T., Ziegler J. (Eds.), Advances in Artificial Life, Proceedings of the 7th European Conference, ECAL2003. Dortmund, Germany, 14-17th September 2003. pp. 51-58. LNAI2801, Springer.
- Hutton T.J., Buxton B.F., Hammond P. (2002) *Estimating Average Growth Trajectories in Shape-Space using Kernel Smoothing*. In: Jon Sporring et al. (eds.), Proceedings of the International Workshop on Growth and Motion in 3D Medical Images, European Conference on Computer Vision, 1st June 2002, Copenhagen, Denmark. pp. 1-7.
- Hutton T.J., Buxton B.F., and Hammond P. (2001) *Dense Surface Point Distribution Models of the Human Face*. In: Proc. IEEE Workshop on Mathematical Methods in Biomedical Image Analysis, Kauai, Hawaii. pp. 153-160.
- Hammond P., Hutton T.J., Patton M.A., and Allanson J. (2001) *Delineation and Visualisation of Congenital Abnormality using 3D Facial Images*. In: Bellazzi R., Zupan B., and Liu X. (Eds.), Proceedings of the Workshop Intelligent Data Analysis in Medicine and Pharmacology, IDAMAP2001 at MedInfo2001, London, UK. Pages 26-29.
- Hutton T.J., Hammond P., Davenport J.C. (1999) *Active Shape Models for Customised Prosthesis Design*. In: W. Horn et al. (Eds.), Proceedings of the Joint European Conference on Artificial Intelligence in Medicine and Medical Decision Making, Lecture Notes in Artificial Intelligence 1620, Springer-Verlag, pp. 448-452

Invited talks/appearances:

- *3D Statistical Shape Modelling of the Human Face*. Seminar, Department of Computing, Imperial College, 20th April 2005.
- *Modelling the Human Face*. Guest seminar, Health Informatics MSc, CHIME, UK, 2003.
- *Teen Species*. Our work on modelling growth and aging of the face was featured in the BBC Science program Teen Species, first broadcast in the UK in 2003.
- *Lattice Artificial Chemistries: an Artificial Life Collidatron*. ALERGIC seminar, University of Sussex, UK, 12th November 2003.

- *Information-Replicating Molecules with Programmable Enzymes*. Aizu-Wakamatsu University, Japan, 30th August 2003.
- *3D Imaging and Soft Tissue Prediction*. Royal College Of Surgeons, Faculty Master Class: Orthognathic Surgery - Executions and Outcomes. London, 30th May 2003.
- *3D Statistical Shape Modelling of the Human Face*. Scanning2002 Conference, Paris, April 2002.
- *3D Face Modelling with Medical Applications*. Danish Technical University, Copenhagen, Denmark, June 2002.
- *Principal Components Analysis and Face Modelling*. Departmental seminar (with Ben Dias), Department of Computing, UCL, UK, 2001.

Meetings organised:

- *Artificial Chemistries and Artificial Life*. 2-day Symposium as part of AISB'06 – the conference of the society of Artificial Intelligence and Social Behaviour, with Suzuki, H. April 2006.
- *Artificial Chemistry and its Applications*. Workshop at ECAL05 (European Conference on Artificial Life), with Suzuki, H. and Liu, J-Q. September 2005.
- *Artificial Chemistry and its Applications*. Workshop at ALife9 (International Conference on Artificial Life), with Suzuki, H. 12th September 2004.

Awards:

- ~£250 – travel funds to present *A Functional Self-Reproducing Cell in a Two-Dimensional Artificial Chemistry*, at AlifeIX, Boston, USA. Awarded by UCL Graduate School Staff Travel Fund.
- ~£900 – to present invited talk: *Information-Replicating Molecules with Programmable Enzymes*. Aizu-Wakamatsu University, Japan, 30th August 2003. Awarded by Aizu-Wakamatsu University.
- £100 – honorarium for presenting invited talk: *3D Imaging and Soft Tissue Prediction*. Royal College Of Surgeons, Faculty Master Class: Orthognathic Surgery - Executions and Outcomes. London, 30th May 2003. Awarded by Royal College Of Surgeons.