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E-mail: thaines@gmail.com
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- ACADEMIC EXPERIENCE Post-doctoral Research Assistant, Queen Mary, University of London (2009–2012)
- Ongoing - working on the analysis of CCTV to detect abnormal behaviour.
- PhD in Computer Vision, University of York (2005–2009)
- Researching the combination of stereopsis and shape from shading for the purpose of obtaining a better shape estimate than either method could obtain alone.
 - First work focused on the core problem, resulting in a modular approach and the conclusion that the modules are the limiting factor.
 - Second and third works are therefore improved modules for the first work, specifically a shape from shading algorithm and a light source and albedo estimation algorithm.
 - Belief propagation has been used extensively, as has directional statistics, with the most noticeable contribution being the combination of these two for solving the shape from shading problem.
 - Many support algorithms are required to implement such a system. Consequently experience has been gained in many areas, such as segmentation and stereopsis.
 - To assist in the PhD a tool, Cyclops (See website), has been created to assist with various data manipulation and calibration tasks. It includes the steps required to take a stereo image pair to a 3D model.
- PUBLICATIONS T. S. F. Haines and T. Xiang, *Delta-Dual Hierarchical Dirichlet Processes: A pragmatic abnormal behaviour detector*, International Conference on Computer Vision, 2011.
- T. S. F. Haines and T. Xiang, *Active Learning using Dirichlet Processes for Rare Class Discovery and Classification*, British Machine Vision Conference, 2011 (Oral).
- T. S. F. Haines and T. Xiang, *Video Topic Modelling with Behavioural Segmentation*, ACM Multimedia Workshop on Multimodal Pervasive Video Analysis, 2010.
- T. S. F. Haines and R. C. Wilson, *Belief Propagation with Directional Statistics for solving the Shape-from-Shading problem*, European Conference on Computer Vision, 2008 (Oral, for which the acceptance rate was 4.6%).
- T. S. F. Haines and R. C. Wilson, *Combining Shape-From-Shading and Stereo Using Gaussian-Markov Random Fields*, International Conference on Pattern Recognition, 2008.
- T. S. F. Haines and R. C. Wilson, *Integrating Stereo with Shape-from-Shading derived Orientation Information*, British Machine Vision Conference, 2007.

PROFESSIONAL
EXPERIENCE

- I.B.M. Hursley, 2003–2004. Industrial Trainee, as part of undergraduate degree.
- Majority of time spent in four man development team working on the middleware project Business Integration for Games.
 - Responsibilities included building (Linux, Windows, Java and C; driven by Ant), installation (Installshield), Linux port and the demos. The demos consisted of two racing games (C++) developed by myself to show the middleware in operation, one for windows and the other for Symbian.
 - Additional responsibilities included technology demos to school children and executives. I developed one of these demos, a virtual version of the office constructed with Unreal Tournament 2004 and integrated with Websphere MQ. This allowed actions in reality and the game to affect each other, i.e. flipping the light switch in one would affect both.
 - Other tasks included implementing a backend for an RFID vending machine, prototyping a brainstorming tool for Intech (A government funded educational establishment) and reverse engineering a wayward fingerprint scanner.

EDUCATION

- Bachelor of Engineering in Computer Science, University of York (2001–2005)
- Received a first class honours (75% weighted average, 83% for final year.)
 - Final year project: *3D Reconstruction of Scenes from Multiple Photos*.
Constructed a working stereopsis system that, whilst lacking robustness, implemented all stages of constructing a 3D model from two photographs, i.e. intrinsic camera calibration, sparse correspondence, fundamental matrix calibration, rectification, dense correspondence and triangulation.
 - Year in Industry working at I.B.M.
 - Modules included Bayesian Networks (86%), Pattern Recognition and Neural Networks (90%), Computer Vision (85%), Formal Specification of Systems (91%), and Formal Program Development (85%).

A-Levels, Peter Symonds College (1999–2001)

- Mathematics with Mechanics, A.
- Further Mathematics with Double Mechanics, C.
- Physics, A
- Computer Science, A

SKILLS

Am necessarily self taught in many mathematical and related areas beyond those necessarily implied by the above. These include linear algebra; statistics - typical, robust and Bayesian, including non-parametric Bayesian methods; information theory; graphical models; neural networks; projective geometry; dynamic programming, belief propagation, Gibbs sampling, variational methods and other optimisation methods.

Primary programming language choices are C++ and Python, but have experience with Java, Ada, Scheme, Pascal and PHP, plus passing experience with Prolog, Erlang, Cg and Javascript.

Have experience with many *systems*, such as Linux administration, assorted databases, Blender, Joomla and L^AT_EX. A.P.I. experience includes, among others, Gtk, OpenGL, DirectX, Websphere MQ and Panda 3D.

During college assisted other student in a lunchtime maths workshop, then during PhD demonstrated Formal Specification of Systems and Formal Program Development. These provided a strong reinforcement of knowledge in these areas, which for the latter includes the B-method and Alloy as well as formal methods in general.

REFERENCES

University of York

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