Osian Haines

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I have recently finished working at the University of Bristol, having completed a PhD and a position as a post-doctoral researcher. My research in the field of computer vision has covered topics such as scene understanding, semantic/structural image segmentation, robot navigation, vision-guided locomotion and facial modelling; and more generally my areas of interest include computer vision, machine learning, computer graphics, and image and signal processing. I am interested in continuing research in these areas, or working in a software development role in an area relating to science and technology.

Key Skills

- Excellent programming skills

  - Highly proficient with **C++**, used for computer vision research, including implementing machine learning, linear algebra, real-time applications, augmented reality, large user interfaces; used with CMake and git on larger collaborative projects
  - Extensive experience with **Matlab**/Octave, for prototyping, emulating DSP code, machine learning, data visualisation, distributing user interfaces
  - Use of **Python** for analysis and visualisation of data (especially with matplotlib)
  - Experience with **Java** for various software engineering (main language taught in BSc)
  - Heavy use of **Latex** for document preparation, including scientific papers, PhD thesis
  - Some experience with C, Pascal, GLSL, Javascript, MySQL, PHP, CSS
  - Familiarity with OpenGL, OpenCV, QT, GTK, VTK, CMake, JSON, Boost and Eigen libraries
  - Have worked on large software projects, alone and collaboratively
  - Coded primarily in Linux, familiar with Windows / Visual Studio

- Experience using many computer vision and related techniques, e.g. image segmentation, machine learning, graphical models, dimensionality reduction, kernel methods, feature descriptors, SLAM and visual odometry

- Excellent communication skills, written and oral

  - Presented work at international conferences, oral presentations and poster sessions
  - Papers published in top conferences and journals (see below)
  - Have collaborated with other researchers/industry and worked in large groups

- Organisational skills

  - Organised a team of researchers to annotate images (including writing the software) on the COGNITO project
  - Conference and workshop organisation and volunteering (see below)

Work Experience

- **Research Assistant in Computer Vision**, University of Bristol, August 2013 – July 2015

  - Project studying visual guided locomotion for bipedal vehicles
  - Responsible for developing shared code and conducting my own research
  - Multidisciplinary project combining the departments of Computer Science, Electronic and Electrical Engineering, Mechanical Engineering and Psychology
  - Led by Dave Bull and Jeremy Burn
  - Funded by UK EPSRC

- **Research project with Helitune Ltd.** and University of Bristol, June 2013 – February 2014

  - Worked with the company to emulate and evaluate their code and suggest vision-based improvements
  - Supervised by Dave Bull

- **Research Assistant, COGNITO Project**, University of Bristol, October 2012 - January 2013

  - Cognitive workflow capturing and rendering with on-body sensor networks
  - International collaboration (led by DFKI, Kaiserslautern, Germany)
  - Work package managed by Andrew Calway and Walterio Mayol-Cuevas

- **Box UK**, 2007 - 2008

  - Part-time work while an undergraduate at a web design company in Cardiff
  - Worked on quality assurance and data entry

Education

- **PhD in Computer Vision**, University of Bristol, 2008 – 2013
    - Thesis titled "Interpreting the Structure of Single Images by Learning From Examples"
    - Supervised by Andrew Calway

- **BSc in Computer Science with Vision and Graphics**, Cardiff University, 2005 – 2008
    - Graduated with first class honours
    - Awarded scholarships for good academic performance in year 1 and in year 2; the British Computer Society award for best performance in year 1; the Microsoft award for best overall performance in year 3; and a scholarship from the MYSIS foundation in year 3
    - Summer research project (2007) on 3D face modelling and tracking, supervised by Dave Marshall and Paul Rosin (funded by the Nuffield Foundation)
    - Final-year project shortlisted at the Science, Engineering and Technology Awards (Information Technology category, sponsored by the Institution of Engineering and Technology)

- **A-Levels**, Ysgol Gyfun Ystalyfera, 2003-2005
    - 3 A Levels: Computing (A), Physics (A), Mathematics with Mechanics (A)
    - 2 AS Levels: Further Mathematics (A) and Music Technology (B)
    - Advanced Extension Award in Mathematics (Merit)

Teaching and Administration

- Co-organised the BMVC Student Workshop, Bristol 2013

- Volunteered at BMVC, Bristol 2013 (photographer)

- Volunteered at the European Conference on Machine Learning, Bristol 2012

- Organised a team of researchers to annotate images for the COGNITO project (including writing the software)

- Teaching Assistant (University of Bristol, 2011-2013) in courses including Programming in C, Introduction to C++, Computer Vision and Image Processing; plus individual tuition of MSc students

- Computer Science Help Desk (University of Bristol, 2009-2010)

- Served on the Student-Staff Panel for three years while at Cardiff; elected chairperson in final year

Academic Publications

- O. Haines, D. Bull, J.F. Burn, "Fusing Inertial Data with Vision for Enhanced Image Understanding". Communications in Computer and Information Science Lecture Series, Springer (in press)

- O. Haines, D. Bull, J.F. Burn, "Using Inertial Data to Enhance Image Segmentation". International Conference on Computer Vision Theory and Applications (2015)

- O. Haines, A. Calway, "Recognising Planes in a Single Image". IEEE Transactions on Pattern Analysis and Machine Intelligence (2014)

- D. Damen, O. Haines, T. Leelasawassuk, A. Calway, W. Mayol-Cuevas, "Multi-User Egocentric Online System for Unsupervised Assistance on Object Usage". ECCV Workshop on Assistive Computer Vision and Robotics (2014)

- D. Damen, T. Leelasawassuk, O. Haines, A. Calway, W. Mayol-Cuevas, "You-Do, I-Learn: Discovering Task Relevant Objects and their Modes of Interaction from Multi-User Egocentric Video". British Machine Vision Conference (2014)

- O. Haines, J. Martínez-Carranza, A. Calway, "Visual Mapping Using Learned Structural Priors". International Conference on Robotics and Automation (2013)

- O. Haines, A. Calway, "Detecting Planes and Estimating Their Orientation from a Single Image". British Machine Vision Conference (2012)

- O. Haines, A. Calway, "Estimating Planar Structure in Single Images by Learning From Examples". International Conference on Pattern Recognition Applications and Methods (2012)