

Employment & Education

- 2019 – **Institute of Science and Technology (IST) Austria**
Postdoctoral Researcher
- Researching deep generative models of 3D objects and scenes, 3D-aware video extrapolation, and learning compositional models of the world
- 2014 – 2018 **University of Edinburgh**
PhD in Computer Vision and Machine Learning
- Researched deep generative models of 3D object shapes and layouts, including unsupervised learning of models of 3D shape from images, and modelling of indoor scene layouts
 - Developed a meta-learning technique that selects inference algorithms for high-order discrete graphical models
 - Developed a method to train CNN-based object detectors end-to-end, directly maximising the non-smooth metric used for evaluation
 - Visiting student at **ETH Zürich** for six months, 2017–2018
- 2010 – 2018 **Blackford Analysis, Edinburgh**
Research Engineer (part-time after 2014)
- Research and development for a medical imaging startup company
 - Developed and productised methods for efficient registration and segmentation of large-scale 2D and 3D imaging data
- 2009 – 2010 **University of Edinburgh**
MSc in Artificial Intelligence (awarded with distinction)
- Specialised in Bayesian machine learning techniques, computer vision, and computational neuroscience
 - Dissertation project investigated a novel application of lexical topic models to probabilistic visual object classifiers
 - Received the *Howe Prize* for highest overall performance on the programme
- 2006 – 2009 **University of Cambridge**
BA (Hons) in Mathematics

Conference & Journal Publications

- Leveraging 2D Data to Learn Textured 3D Mesh Generation
(P. Henderson, V. Tsiminaki & C.H. Lampert, CVPR 2020; oral presentation)
- Learning Single-Image 3D Reconstruction by Generative Modelling of Shape, Pose and Shading
(P. Henderson & V. Ferrari, International Journal of Computer Vision, 2019)
- Learning to generate and reconstruct 3D meshes with only 2D supervision
(P. Henderson & V. Ferrari, British Machine Vision Conference 2018; oral presentation)
- Automatically selecting inference algorithms for discrete energy minimisation
(P. Henderson & V. Ferrari, European Conference on Computer Vision 2016)
- End-to-end training of object class detectors for mean average precision
(P. Henderson & V. Ferrari, Asian Conference on Computer Vision 2016)

Preprints

- Object-Centric Image Generation with Factored Depths, Locations, and Appearances
(T. Anciukevicius, C.H. Lampert & P. Henderson, arXiv 2020)
- Automatic Generation of Constrained Furniture Layouts
(P. Henderson, K. Subr & V. Ferrari, arXiv 2017)

Patents

- US pat. no. 9,224,229 **Process and apparatus for data registration**
B. Panter, R. Tweedie, P. Henderson
- US pat. no. 9,684,674 **Image data processing**
R. Tweedie, P. Henderson, B. Panter, P. Maxwell, R. Moffett

Awards and Professional Activities

- **EPSRC Doctoral Training Award**, covering PhD tuition and living expenses
(UK EPSRC / Edinburgh University School of Informatics, 2014)
- **Howe Prize for Top Performance in MSc Artificial Intelligence**
(Edinburgh University School of Informatics, 2010)
- Reviewer for CVPR, SIGGRAPH, SIGGRAPH Asia, BMVC, IJCV, TIP, TVG
- Lead developer of DIRT, a differentiable mesh renderer for TensorFlow

Skills

- Very strong programming skills in Python, C++, C#, and Java, including deep learning and numerical libraries such as TensorFlow, PyTorch, numpy, Eigen
- Extensive software engineering experience in industry, specialising in medical imaging applications
- **Languages:** English (native); French (intermediate); German (intermediate)
- **Extra-curricular:** Scottish dancing (including teaching classes); playing classical guitar