WEIDI XIE

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EDUCATION

University of Oxford, UK 2014 – 2018
- Doctor of Philosophy (DPhil) in Engineering Science
  - Biomedical Image Analysis Group (Biomedical Imaging) and Visual Geometry Group (Computer Vision).
  - Thesis: Deep Neural Networks in Computer Vision and Biomedical Image Analysis
  - Supervisors: Professor Alison Noble OBE FREng FRS & Professor Andrew Zisserman FRS
  - Examined by: Professor Andrea Vedaldi (Internal) & Professor Daniel Rueckert (External)

University College London, UK 2012 – 2013
- Master of Science (MSc) in Computer Graphics, Vision and Imaging
  - Thesis: Document Authorship Recognition with Machine Learning **(Distinction)**
  - Supervisor: Professor Lewis D Griffin

Queen Mary, University of London, UK (Exchange Student with Partial Scholarships) 2011 – 2012
- Bachelor of Science (BSc) in Telecommunication Engineering (**First-class Honours)**

Beijing University of Posts and Telecommunications, China 2008 – 2011
- Bachelor of Science (BSc) in Telecommunication Engineering (**First-class Honours)**

WORK EXPERIENCE

Department of Engineering Science, University of Oxford. Nov 2017 – Present
- Postdoctoral Researcher in Visual Geometry Group, Seebibyte Project.
  - Transfer current computer vision algorithms to industry and other academic disciplines, e.g. medical, zoology.

MRC Laboratory for Molecular Cell Biology, University College London. Sep 2013 – Feb 2014
- Research Assistant.
  - Develop cell tracking systems for microscopy video streams.

AWARDS & SCHOLARSHIPS

- **Best Paper Award** MICCAI workshop on Fetal and InFant Image Analysis. 2017
- **Best Poster Award** Conference on Functional Imaging and Modelling of the Heart. 2017
- **Google Oxford-Deepmind Graduate Scholarships** Google DeepMind 2015 – 2017
- **Travel Award** Wolfson College, Oxford. 2015
- **Magadalen Award** China Oxford Scholarship Fund 2014 – 2015

RESEARCH EXPERIENCE

Human Speaker (Voice) Recognition Jul 2018 – Present
- Developing Deep Learning models for speaker recognition.

Category-agnostic Objects Counting Jan 2018 – Present
- Developing computational models that enable category-agnostic objects counting.
- While deploying the pre-trained model to unseen new environments, it also allows fast adaptation by interacting with human users.

Human Face Recognition Nov 2017 – Present
- Principal contributor in collecting and releasing the *first* large-scale face recognition dataset (VGGFace2), with large pose and age variations, while having minimal label noise.
- Developed the state-of-the-art Deep Learning model (Comparator Networks) for set-to-set human face verification.

Structure Segmentation in Cardiac Magnetic Resonance (CMR) Imaging Dec 2016 – Dec 2017
- Developed Deep Learning model (Ω-Net) that offers the potential to mimic the diagnosis process of cardiac radiologists, where structure localization, re-orientation and segmentation on the cardiac MR videos are trained simultaneously in one model.

Key Structure Localization & Alignment in 3D Fetal Neurosonography Nov 2016 – Aug 2017
- Developed multi-task Convolutional Neural Networks for localizing key structures in 3D ultrasound fetal brain, and aligning the brain volumes to a reference coordinate system.

Cell Detection & Counting in Microscopy Imaging Dec 2014 – Jun 2015
- Proposed the *first* Fully Convolutional Regression Networks (FCRNs) for microscopy cell detection and counting.

COMPUTER VISION

[1] **Weidi Xie**, Li Shen, and Andrew Zisserman, "Comparator Networks". In: *European Conference on Computer Vision (ECCV)*, 2018.

[2] **Weidi Xie** and Andrew Zisserman, "Multicolumn Networks on Face Recognition". In: *British Machine Vision Conference (BMVC)*, 2018.

[3] Erika Lu, **Weidi Xie**, and Andrew Zisserman, "Class-agnostic Counting". In: *Asian Conference on Computer Vision (ACCV)*, 2018.

[4] Qiong Cao, Li Shen, **Weidi Xie**, Omkar M. Parkhi, and Andrew Zisserman, "VGGFace2: A Dataset for Recognising Faces Across Pose and Age". In: *IEEE International Conference on Automatic Face and Gesture Recognition (F&G), 2018*,

[5] **Weidi Xie**, J. Alison Noble, and Andrew Zisserman, "Layer Recurrent Neural Networks". Technical Report, 2016, URL: https://openreview.net/pdf?id=rJJRDvcex.

BIOMEDICAL IMAGING

[1] **Weidi Xie***, Davis M. Vigneaulta*, Carolyn Y. Ho, David A. Bluemke, and J. Alison Noble, "Ω-Net: Fully Automatic, Multi-View Cardiac MR Detection, Orientation, and Segmentation with Deep Neural Networks". In: *Medical Image Analysis*, Volume 48, August 2018, Pages 95-106. (*** indicates joint first authors)**

[2] Ruobing Huang, **Weidi Xie**, and J. Alison Noble, "VP-Nets : Efficient Automatic Localization of Key Brain Structures in 3D Fetal Neurosonography". In: *Medical Image Analysis*, Volume 47, July 2018, Pages 127–139.

[3] **Weidi Xie***, Ana I.L. Namburete*, Mohammad Yaqub, Andrew Zisserman, and J. Alison Noble, "Fully-Automated Alignment of 3D Fetal Brain Ultrasound to A Canonical Reference Space Using Multi-task Learning". In: *Medical Image Analysis*, Volume 46, May 2018, Pages 1-14. (*** indicates joint first authors)**

[4] Mohammad Ali Maraci, **Weidi Xie**, and J. Alison Noble, "Can Dilated Convolutions Capture Ultrasound Video Dynamics?". In: *9th International Conference on Machine Learning in Medical Imaging (MLMI), 2018*.

[5] Ana I.L. Namburete, **Weidi Xie**, and J. Alison Noble, "Robust Regression of Brain Maturation from 3D Fetal Neurosonography using CRNs". In: *MICCAI Workshop on Fetal and InFant Image analysis (FIFI), 2017*. Best Paper Award.

[6] Davis M. Vigneaulta, **Weidi Xie**, David A. Bluemke, and J. Alison Noble, "Feature Tracking Cardiac Magnetic Resonance via Deep Learning and Spline Optimization". In: *Functional Imaging and Modelling of the Heart (FIMH), 2017*. Best Poster Award.

[7] Yipeng Hu, Eli Gibson, Li-Lin Lee, **Weidi Xie**, Dean C. Barratt, Tom Vercauteren, and J. Alison Noble, "Freehand Ultrasound Image Simulation with Spatially-conditioned Generative Adversarial Networks". In: *MICCAI Workshop on Reconstruction and Analysis of Moving Body Organs (RAMBO), 2017*.

[8] **Weidi Xie**, J. Alison Noble, and Andrew Zisserman, "Microscopy Cell Counting And Detection with Fully Convolutional Regression Networks". In: *Computer Methods in Biomechanics and Biomedical Engineering : Imaging & Visualization*, May 2016, Pages 283-292.

[9] **Weidi Xie**, J. Alison Noble, and Andrew Zisserman, "Microscopy Cell Counting with Fully Convolutional Regression Networks". In: *MICCAI 1st Deep Learning Workshop (DLMIA)*, 2015.

PRESENTATIONS

- IEEE International Conference on Automatic Face and Gesture Recognition (F&G), Xi'an, China, 2018
- Deep Learning Workshop in MICCAI, Munich, Germany, 2015
- Microscopy Cell Counting with Fully Convolutional Networks, in Heidelberg Collaboratory for Image Processing Group, Heidelberg, Germany, 2015

PROFESSIONAL & ACTIVITIES

- Reviewer for MICCAI, ECCV.
- Reviewer for BMC Bioinformatics.
- Reviewer for IEEE Transactions on Medical Imaging.
- Reviewer for IEEE Journal of Biomedical and Health Informatics.
- Reviewer for Transactions on Pattern Analysis and Machine Intelligence.

[*CV compiled on 2018-11-01*]