

WEIDI XIE

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EDUCATION	University of Oxford, UK	2014 – 2018
	<ul style="list-style-type: none">▪ Doctor of Philosophy (DPhil) in Engineering Science<ul style="list-style-type: none">• <u>Thesis</u>: Deep Neural Networks in Computer Vision and Biomedical Image Analysis• Supervisors: Professor Alison Noble OBE FRS & Professor Andrew Zisserman FRS• Examined by: Professor Andrea Vedaldi (internal) & Professor Daniel Rueckert (external)	
	University College London, UK	2012 – 2013
	<ul style="list-style-type: none">▪ Master of Science (MSc) in Computer Graphics, Vision and Imaging<ul style="list-style-type: none">• <u>Thesis</u>: Document Authorship Recognition with Machine Learning• Passed thesis with distinction	
	Queen Mary, University of London, UK (Exchange student with partial scholarships)	2011 – 2012
WORK EXPERIENCE	<ul style="list-style-type: none">▪ Bachelor of Science (BSc) in Telecommunication Engineering with Management<ul style="list-style-type: none">• Graduated with First-class Honours	
	Beijing University of Posts and Telecommunications, China	2008 – 2011
	<ul style="list-style-type: none">▪ Bachelor of Science (BSc) in Telecommunication Engineering<ul style="list-style-type: none">• Graduated with First-class Honours	
	Department of Engineering Science, University of Oxford.	Nov 2017 – Present
	<ul style="list-style-type: none">▪ Postdoctoral Researcher in Visual Geometry Group, Seebibyte Project.<ul style="list-style-type: none">• Develop new Deep Learning architectures for template-wise face recognition.• Transfer current computer vision technologies to industry and other academic disciplines, such as archaeology, art, geology, medicine, plant sciences and zoology.	
AWARDS & SCHOLARSHIPS	MRC Laboratory for Molecular Cell Biology, University College London.	Sep 2013 – Feb 2014
	<ul style="list-style-type: none">▪ Research Assistant.<ul style="list-style-type: none">• Develop cell tracking systems for microscopy video streams.	
	<ul style="list-style-type: none">▪ Best Paper Award MICCAI workshop on Fetal and InFant Image Analysis, FIFI 2017.	2017
	<ul style="list-style-type: none">▪ Best Poster Award Functional Imaging and Modelling of the Heart, FIMH 2017.	2017
	<ul style="list-style-type: none">▪ Google Oxford-Deepmind Graduate Scholarships (£75k) Google DeepMind Oxford-DeepMind Full Graduate Scholarships in Machine Learning and Biomedical Image Analysis.	2015 – 2017
RESEARCH INTERESTS	<ul style="list-style-type: none">▪ Magadalen Award (£5k) China Oxford Scholarship Fund (COSF). For students with excellent academic record.	2014 – 2015
	<ul style="list-style-type: none">▪ Travel Award (£250) Wolfson College, Oxford .	2015
	Human Speaker (Voice) Recognition	Jun 2018 – Present
	<ul style="list-style-type: none">▪ I am currently developing Deep Learning architectures for speaker recognition.▪ <u>Supervisor</u>: Professor Andrew Zisserman	
	Category-agnostic Objects Counting	Jan 2018 – Present
	<ul style="list-style-type: none">▪ I am currently co-supervising Ms Erika Lu, a Dphil candidate, on developing a generic machine learning model for counting objects of any categories in an image. While deploying the pre-trained model to unseen domains, it also enables fast adaptation by human interaction. <u>Supervisor</u>: Professor Andrew Zisserman	
	Human Face Recognition	Nov 2017 – Jun 2018
	<ul style="list-style-type: none">▪ I have been a principal contributor in collecting and releasing the <i>first</i> large-scale face recognition dataset (VGGFace2), with large pose and age variations, while having minimal label noise.▪ I have developed the state-of-the-art Deep Learning architecture (Comparator Networks) for template-wise face verification. This novel architecture design can ingest multiple images as input, measure relative image visual qualities with internal competition, and encode multiple discriminative regions by soft-attention mechanism, all in one end-to-end trainable system.	

- Supervisor: Professor Andrew Zisserman

Structure Segmentation in Cardiac Magnetic Resonance (CMR) Imaging Dec 2016 – Dec 2017

- I have co-developed the first Deep Learning architecture (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.

Supervisor: Professor Alison Noble & Professor Andrew Zisserman

Key Structure Localization & Alignment in 3D Fetal Neurosonography Nov 2016 – Aug 2017

- I have co-developed the Deep Learning model for 3D brain structure localization and fully-automated alignment of 3D fetal brain ultrasound volume to a canonical reference space using multi-task Convolutional Neural Networks (CNNs).

Supervisor: Professor Alison Noble & Professor Andrew Zisserman

Cell Detection & Counting in Microscopy Imaging Dec 2014 – Jun 2015

- I have proposed the *first* Fully Convolutional Regression Networks (FCRNs) for microscopy cell detection and counting, which has now become a standard approach in this field. According to Google Scholar, this work has been cited 67 times.

Supervisor: Professor Alison Noble & Professor Andrew Zisserman

JOURNAL PUBLICATIONS

- [1] Davis M. Vigneault*, **Weidi Xie***, 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 to equal contribution, joint first author, 5-Year Impact Factor: 5.417)
- [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. (5-Year Impact Factor: 5.417)
- [3] Ana I.L. Namburete*, **Weidi Xie***, Mohammad Yaqub, Andrew Zisserman, 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 to equal contribution, , joint first author, 5-Year Impact Factor: 5.417)
- [4] **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*.

CONFERENCE PUBLICATIONS

- [5] **Weidi Xie**, Li Shen, and Andrew Zisserman, “Comparator Networks”. In: *European Conference on Computer Vision (ECCV)*, 2018.
- [6] **Weidi Xie** and Andrew Zisserman, “Multicolumn Networks on Face Recognition”. In: *British Machine Vision Conference (BMVC)*, 2018.
- [7] 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, [Oral](#).
- [8] Erika Lu, **Weidi Xie**, and Andrew Zisserman, “When Tracking Met Counting: An Adaptable, Self-Similarity Counting Network.”. Submitted to *Asian Conference on Computer Vision (ACCV)*, 2018. (UnderReview)
- [9] 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.
- [10] 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.
- [11] Davis M. Vigneault, **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.

- [12] 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.
- [13] **Weidi Xie**, J. Alison Noble, and Andrew Zisserman, “Microscopy Cell Counting with Fully Convolutional Regression Networks”. In: *MICCAI 1st Deep Learning Workshop (DLMIA)*, 2015.
- [14] **Weidi Xie**, J. Alison Noble, and Andrew Zisserman, “Layer Recurrent Neural Networks”. Technical Report, <https://openreview.net/pdf?id=rJJRDvcex>.

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 IEEE Transactions on Medical Imaging.
- Reviewer for IEEE Journal of Biomedical and Health Informatics.

LANGUAGES

- Chinese (Native)
- English (Full Professional Proficiency)

[CV compiled on 2018-07-31]