

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

- Research Fellow 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

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| ▪ Best Paper Award | Computer Methods in Biomechanics and Biomedical Engineering | 2019 |
| ▪ Excellence Award | Department of Engineering Science, University of Oxford. | 2018 |
| ▪ 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 HIGHLIGHT

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 (FCRN) 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. **(Oral)**
 - [5] **Weidi Xie**, J. Alison Noble, and Andrew Zisserman, “Layer Recurrent Neural Networks”. Technical Report, 2016, URL: <https://openreview.net/pdf?id=rJJRDvcex>.
- ACOUSTICS PROCESSING**
- [1] **Weidi Xie**, Arsha Nagrani, Joon Son Chung, Andrew Zisserman, “Utterance-level Aggregation For Speaker Recognition In The Wild”. In: *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2019. **(Oral)**
- 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. (first two authors contribute equally)
 - [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. (first two authors contribute equally)
 - [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. Best Paper Award
 - [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, CVPR, ICCV.
 - Reviewer for BMC Bioinformatics.
 - Reviewer for ACM Computing Surveys.

- Reviewer for IEEE Transactions on Medical Imaging.
- Reviewer for International Journal of Computer Vision.
- Reviewer for IEEE Journal of Biomedical and Health Informatics.
- Reviewer for Transactions on Pattern Analysis and Machine Intelligence.
- Reviewer for IEEE Transactions on Biometrics, Behavior, and Identity Science.

[CV compiled on 2019-06-23]