Vaanathi Sundaresan

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Somerville College
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EDUCATION

- **DPhil in Biomedical Imaging**   **(expected graduation 2019)**
  Area of research: Modelling structural and functional brain changes in diseases
  Supervisors: Prof. Mark Jenkinson, Dr. Ludovica Griffanti, Dr. Giovanna Zamboni
  University of Oxford, UK

- **M.S. (By Research) in Electrical Engineering**   **(2012 - 2015)**
  Thesis title: Detection of age-related macular degeneration on retinal fundus images
  Supervisors: Prof. Mohanasankar Sivaprakasam, Dr. Niranjan Joshi
  Indian Institute of Technology Madras (IITM), India

- **B.Tech. in Electronics and Communication Engineering**   **(2011)**
  Pondicherry Engineering College, India

RESEARCH WORK

- **Oxford centre for function MRI of the brain (FMRIB), University of Oxford, UK**
  (2016 – present)
  – Modelling structural and functional brain changes in disease under the supervision of Prof. Mark Jenkinson

- **Institute of Biomedical Engineering (IBME), University of Oxford, UK**   **(2016)**
  – Automated characterization of fetal echocardiography using deep learning under the supervision of Prof. Alison Noble

- **FMRIB centre, University of Oxford, UK**   **(2016)**
  – Modelling white matter hyperintensities distribution using Bayesian Inference under the supervision of Prof. Mark Jenkinson

- **Biomedical Instrumentation group, Indian Institute of Technology Madras, India**
  (2012 – 2015)
  – Identification and characterization of stages of Age-related Macular Degeneration (AMD) from retinal fundus images
  – Identification of bright lesions for Diabetic Retinopathy (DR) screening

- **Healthcare technology Innovation Centre (HTIC), IITM Research Park, IITM, India**
  (2013 – 2015)
  – Development of DR screening/grading
  – A Robust, integrated method for detection and localization of optic disc and macula

AWARDS AND SCHOLARSHIPS

- **Prem Suki Foundation award (2015 – 2019)** – Somerville College, University of Oxford, UK
- **Half-time Research/Teaching Assistantship (2012 – 2015)** – Indian Institute of Technology Madras, India

SKILLSET

- **Coding skills:** Matlab, OpenCV, C, C++, LaTeX, Python, HTML
- **Core skills:** Image analysis, Machine learning
- **Project management skills:** Technical documentation and presentation

INDUSTRIAL TRAINING

- **Project associate** at HTIC, for industry sponsored project on Characterization and screening of 'Age- Related Macular Degeneration'   (2013 – 2015)
- **Research intern** at HTIC on developing a diabetic retinopathy screening tool   (2013)

EXTRA CURRICULAR ACTIVITIES

- **Teaching Assistant** in Biomedical Instrumentation course, IIT Madras   (2013)
- **Design head** for ENC INFO' 09 (Department magazine), Pondicherry Engineering College
                                                                                                                 (2009)

PUBLICATIONS AND PATENTS (AS OF 2016)

Journals

- Griffanti, L., Zamboni, G., Khan, A., Li, L., Bonifacio, G., **Sundaresan, V.,** Schulz, U.G., Kuker, W., Battaglini, M., Rothwell, P.M. and Jenkinson, M., 2016. BIANCA (Brain Intensity AbNormality Classification Algorithm): A new tool for automated segmentation of white matter hyperintensities. NeuroImage, 141, pp.191-205.

Conferences/Abstracts

- **Sundaresan, V.,** Griffanti L., Zamboni G., Jenkinson M. "Modelling white matter hyperintensities distribution within a population using Bayesian Inference." Annual meeting of Organization for Human Brain Mapping (OHBM), 2017 (under review).
- **Sundaresan, V.,** Bridge, C.P., Ioannou, C., Noble, J.A., 2017. "Automated characterization of the fetal heart in ultrasound images using fully convolutional neural networks." 14th IEEE International symposium on Biomedical Imaging (ISBI) 2016 (accepted).
- **Sundaresan V.,** Ram K., Kulasekaran. S, Joshi N., and Sivaprakasam M. "Adaptive super-candidate based approach for detection and classification of drusen on retinal fundus images." Ophthalmic Medical Image Analysis Workshop, MICCAI 2015.
- **Sundaresan V.,** Ram K., Joshi N., and Sivaprakasam M., and Gandhi R. "Computer-assisted grading of diabetic macular edema on retinal color fundus images." 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 2015.
- **Sundaresan V.,** Ram K., Joshi N., and Sivaprakasam M., and Gandhi R. "Integrated approach for accurate localization of optic disc and macula." Ophthalmic Medical Image Analysis Workshop, MICCAI 2014.

Patents

- Method and system for performing ophthalmic image analysis (App. No: 3534/CHE/2013, Status: Filed)