Elisabeth **Lane**

COMPUTER SCIENCE PhD CANDIDATE · MACHINE LEARNING · COMPUTER VISION

📱 (+44) 7950213262 | ✉ bethlane@outlook.com | 🏠 elisabethlane.github.io | 🐙 elisabethlane | 💼 beth-lane | 🎓 Scholar

Research Interests and Experience

PhD Candidate specialising in Machine Learning, Deep Learning and Computer Vision. Experience solving complex problems using large, real-world datasets; researching and applying cutting-edge methods to produce accurate, reproducible and efficient algorithms. Techniques include classification, semantic segmentation, object detection, Cartesian coordinate localisation, time-series prediction (LSTM) and multi-task learning networks.

Research published in well-regarded Academic journals and presented at the Medical Imaging with Deep Learning (MIDL) conference, 2021 & 2022.

Adept at building data processing pipelines, knowledge of Python and Tensorflow/Keras programming, network training, optimisation and inference, visualisation and dissemination of results. Passionate about research and building Machine Learning solutions beyond the state-of-the-art.

Excellent communication, teamwork and presentation skills.

Key Skills

Machine Learning · Deep Learning · Computer Vision · Research · Computer Science Fundamentals · Programming · Data Visualisation · Data structures · Algorithmic Design · Dissemination of Results · Academic Writing · Presenting · Training & Mentoring · Teamwork

Technical Skills

- **Tools**: Python, Tensorflow, Keras, Anaconda, Linux, SQLAlchemy, Google Colaboratory, Jupyter Notebook, Spyder, Docker

- **Packages**: NumPy, SciPy, scikit-learn, Pandas, Matplotlib, PIL, Open-CV, ffmpeg, Imgaug, Flask, Turbo-Flask, Jinja2, LaTeX

- **Statistical & Machine Learning**: Model development, Transfer learning, Performance optimisation, Supervised & unsupervised learning, Data pre- and post-processing, Visualisation, Regression, Clustering & Classification, Segmentation, Object detection, Cartesian coordinate localisation, Quantitative analysis: Bland-Altman, Confusion matrix, Statistical variability analysis

Education

University of West London — *London*
PhD COMPUTER SCIENCE — *Sept 2019 - Sept 2022*

- Recipient of Vice Chancellor's PhD scholarship

University of West London — *London*
MSc SOFTWARE ENGINEERING — *Sept 2018 - Sept 2019*

- Graduated with Distinction

University of Southampton — *Southampton*
POST-GRADUATE CERTIFICATE OF EDUCATION (PGCE), COMPUTER SCIENCE — *Sept 2011 - Sept 2012*

- Awarded Qualified Teacher Status (QTS)

University of York St John — *York*
BA HONS MANAGEMENT STUDIES — *Sept 2004 - Sept 2007*

Professional Experience

University of West London *London*
RESEARCH & TEACHING ASSISTANT *Sept 2019 - Sept 2022*

- Lecture undergraduate students in AI and ML
- Mentor junior PhD candidates in growing both their technical and collaborative skills
- Represent research group at University & external events

The Godolphin and Latymer School *London*
TEACHER OF COMPUTING (PART-TIME) *Oct 2019 - August 2022*

- Assist in the delivery of technical specification content
- Supervise development of full-stack web application A-Level project
- Teach python programming to girls aged 11-18

The Marist School *Ascot*
HEAD OF COMPUTING *Mar 2018 - Sept 2019*

- Lead Computing department and manage staff
- Responsible for whole-school STEM strategy
- Plan and deliver extra-curricular and community outreach initiatives

Queen's College, Harley Street *London*
COMPUTING CO-ORDINATOR *Sept 2014 - Mar 2018*

- Introduce Computer Science and STEM to the school
- Lead the department and staff IT training

Bohunt School *Hampshire*
TEACHER OF COMPUTING *Sept 2012 - Sept 2014*

- Plan and deliver inspiring Computing schemes of work
- Run extra-curricular clubs

The FES Group, York *York*
SUSTAINABILITY CONSULTANT *Aug 2007 - Sept 2011*

- Assessment of building energy efficiency in the residential and domestic sectors

Publications and Conferences

2021 **Multibeat echocardiographic phase detection using deep neural networks,** Elisabeth S Lane, Neda Azarmehr, Jevgeni Jevsikov, James P Howard, Matthew J Shun-Shin, Graham D Cole, Darrel P Francis, Massoud Zolgharni *Computers in Biology & Medicine*

2021 **Echocardiographic Phase Detection Using Neural Networks,** Elisabeth S Lane, Neda Azarmehr, Jevgeni Jevsikov, James P Howard, Matthew Shun-shin, Darrel P Francis, Massoud Zolgharni *MIDL - 2021*

2021 **Neural architecture search of echocardiography view classifiers,** Neda Azarmehr, Xujiong Ye, James P Howard, Elisabeth S Lane, Matthew J Shun-Shin, Graham D Cole, Luc Bidaut, Darrel P Francis, Massoud Zolgharni *Journal of Medical Imaging*

2022 **Automated Multibeat Tissue Doppler Echocardiography Analysis Using Deep Neural Networks,** Elisabeth S Lane, Jevgeni Jevsikov, Matthew Shun-shin, Darrel P Francis, Massoud Zolgharni *MIDL - 2022*

2022 **Automated Analysis of Mitral Inflow Doppler using Convolutional Neural Networks,** Jevgeni Jevsikov, Elisabeth S Lane, Catherine C Stowell, Matthew J Shun-shin, Darrel P Francis, Massoud Zolgharni *MIDL - 2022*

2022 **Influence of Loss Function on Left Ventricular Volume and Ejection Fraction Estimation in Deep Neural Networks,** Preshen Naidoo, Eman I Alajrami, Elisabeth S Lane, Jevgeni Jevsikov, Matthew J Shun-shin, Darrel P Francis, Massoud Zolgharni *MIDL - 2022*

2022 **Automated Multibeat Tissue Doppler Echocardiography Analysis Using Deep Neural Networks,** Elisabeth S Lane, Jevgeni Jevsikov, Matthew Shun-shin, Darrel P Francis, Massoud Zolgharni [Under Review] *Medical & Biological Engineering & Computing*