



PROFILE

A creative, well-presented and resourceful research scientist and machine learning engineer focusing on applications of deep learning in cardiac imaging. Former live music agent and project manager. I possess excellent communication skills, enthusiasm and an exceptional work ethic driven by a deep-rooted passion for altruistic technology.

EDUCATION

Queen Mary University Of London (2022-Present) : PhD. AI-based Cardiac Image Computing

- Research: Segmentation, registration and reconstruction of cardiac structures using mesh and polygon-based approaches for atherosclerosis assessment. Geometric deep learning using graph neural networks.
- Supervision: Qianni Zhang (QMUL), Greg Slabaugh (QMUL), Christos Bourantas (QMUL / Barts NHS)

Queen Mary University Of London (2021) : MSc Data Science & Artificial Intelligence.

- Research: Deep Learning for Small Bowel Motility Assessment in Crohn's Patients.
- Supervision: Prof Greg Slabaugh (QMUL) and Dr Asma Fikree (Royal Hospital London NHS)
- Grade: Distinction (90%)

University Of Sussex (2011-2015) : BSc (Hons) Chemistry. 2:1 class

PUBLICATIONS (first author)

- **K.Bransby**, R. Bajaj, ..., G.Slabaugh, C.Bourantas, Q.Zhang. - Computers in Biology and Medicine (2024) - "POLYCORE: Polygon-based contour refinement for improved Intravascular Ultrasound Segmentation"
- **K.Bransby**, ..., A.Chartsias, A.Gomez. - MICCAI (2024) - "BackMix: Mitigating Shortcut Learning in Echocardiography with Minimal Supervision"
- **K.Bransby**, W.Cho Kim, ..., A.Gomez, A.Chartsias - MICCAI Workshop ASMUS (2024) - "Multi-Site Class-Incremental Learning with Weighted Experts in Echocardiography" **best Oral + best paper finalist**
- **K.Bransby**, G.Slabaugh, C.Bourantas, Q.Zhang. - MICCAI (2023) - "Joint Dense-Point Representation for Contour-Aware Graph Segmentation"
- **K.Bransby**, V. Tufaro, M.Cap, P.Kitslaar, H.Reiber, G.Slabaugh, C.Bourantas, Q.Zhang. - ISBI (2023) - "3D Coronary Vessel Reconstruction from Bi-Plane Angiography using Graph Convolutional Networks."

SKILLS

- Python (5yr experience) + data science packages (Sklearn, Pandas, Numpy etc)
- Deep learning frameworks (Pytorch, Tensorflow) and image processing (DICOM, OpenCV, ITK, VTK)
- Extensive network building experience (CNN, Graph, RNN, Transformer) for tasks such as classification, reconstruction, segmentation, object detection, registration.
- Software Engineering: git, bash, linux, cloud-based GPUs, Azure
- Experience with large scale medical image datasets (video, mesh, volume, sequence, point cloud etc) across several modalities (echo, intravascular imaging, OCT, x-ray, angiography)
- Strong track record of interfacing between industry, academic and clinical partners.

EXPERIENCE

Research Intern (2024) : 6-month internship at Ultromics, a start-up developing AI for echocardiography analysis.

- Research: Shortcut learning, Out-of-distribution detection, Class Incremental learning.

Teaching Fellow & Demonstrator (2022-), Queen Mary University of London

- Successful thesis supervision for 8 BSc and 11 MSc students. Lab and tutorial lead for MSc modules: Deep Learning and Neural Networks, Information Retrieval and Machine Learning

References:

Prof Greg Slabaugh - Professor of Computer Vision and AI at Queen Mary University London - g.slabaugh@qmul.ac.uk

Dr Alberto Gomez - AI Lead at Ultromics - alberto.gomez@ultromics.com

Prof Christos Bourantas - Professor of Cardiology, Consultant Cardiologist, Barts NHS London - cbourantas@gmail.com