KIT MILLS BRANSBY

https://kitbransby.github.io

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: Temporal alignment of non-linear videos, 3D reconstruction of coronary vessels, semantic segmentation using graph neural networks, segmentation using joint dense-point representations, polygon-based segmentation.
- 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.Beqiri, W.Cho Kim, J.Oliviera, A.Chartsias, A.Gomez. - MICCAI (2024) - *"BackMix: Mitigating Shortcut Learning in Echocardiography with Minimal Supervision"*
- **K.Bransby**, W.Cho Kim, J.Oliviera, A.Thorley, A.Beqiri, A.Gomez, A.Chartsias - MICCAI workshop ASMUS (2024) - *"Multi-Site Class-Incremental Learning with Weighted Experts in Echocardiography"*
- **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* (4yr experience) + data science packages (*Sklearn, Pandas, Numpy* etc)
- Deep learning frameworks (*Pytorch, Tensorflow*) and image processing (*OpenCV, PIL, SITK, 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 high-dimensional image datasets (e.g *X-ray, RGB, Ultrasound, 3D, Mesh, DICOM*)

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

- Thesis project supervision for 8 BSc and 10 MSc students. Run tutorials and give occasional lectures on the Information Retrieval (ECS736P) and Machine Learning (ECS708P) modules.
- Lab demonstration for MSc modules: Deep Learning, Information Retrieval, Data Mining, Python Programming

References:

Dr Qianni Zhang - Senior Lecturer at Queen Mary University London - qianni.zhang@qmul.ac.uk
Prof Greg Slaubaugh - Professor of Computer Vision and AI at Queen Mary University London - g.slabaugh@qmul.ac.uk