Felix Bragman

+44 (0) 7738226693
felixbragman@gmail.com
google.scholar/felixbragman

Executive Summary

Research scientist at Babylon Health with expertise in computer vision and deep learning. Extensive experience implementing and developing theoretical models using computational tools. Passionate about researching and deploying methods in machine learning and computer vision to solve complex problems across various industries.

Experience

babylon health 2019 - ongoing
Research Scientist
Probabilistic Graphical Models squad

- Researching novel methods in representation learning, generative modelling and causal inference
- Developing libraries to facilitate representation learning and computer vision research in the company
- Development in Keras and PyTorch

University College London 2017-2019
Research Associate in Machine Learning and Medical Image Computing
Supervisor: Dr. M. Jorge Cardoso

- Researched and developed multiple methods for multi-task learning applied to computer vision and medical image computing
- Work published as oral presentations at MICCAI 2018 and ICCV 2019
- Contributor to NiftyNet: an open-source convolutional neural networks platform in TensorFlow for medical image analysis

Education

University College London 2012-2017
M.Res./Ph.D. in Biomedical and Medical Imaging
Quantitative lung CT analysis for the study & diagnosis of COPD
Supervisors: Prof. David Hawkes and Prof. John Hurst

- Developed automated quantitative tools for the analysis of lung disease from CT
- Developed novel algorithms for the segmentation of pulmonary structures
- Applied novel algorithms to answer clinical hypotheses related to COPD disease progression on large complex clinical datasets (10,000 patients, >2TB)

University of Oxford 2011-2012
M.Sc. with distinction in Biomedical Engineering (ranked 1st in class)

University College London 2007-2011
B.Eng. first class honours in Mechanical Engineering

Skills

Experienced - Python (Tensorflow, Keras, PyTorch), MATLAB and LaTex
Knowledgeable - C++, Linux, Microsoft Office, Bash, Git and docker

Selected Publications

Stochastic filter groups for multi-task CNNs: learning specialist and generalist convolution kernels
ICCV, 2019, *oral (top 4.3% of 4,303 submissions)*

- Novel method that learns task-specific and shared representations in multi-task learning
- Developed Stochastic Filter Groups; probabilistic grouping of kernels that help learn the CNN architecture
- Method optimised through variational inference by extending Bernoulli dropout to Categorical distributions

Uncertainty in multitask learning: joint representations for probabilistic MR-only radiotherapy planning
MICCAI, 2018, *spotlight oral (top 5% of submissions)*, acceptance rate≈30%

- Multitask learning with hard-parameter sharing
- Probabilistic deep-learning to estimate uncertainty in the neural network
- Application to simultaneous image regression (modality transfer) and organ segmentation

Pulmonary lobe segmentation with probabilistic segmentation of the fissures and a groupwise fissure prior
IEEE Transactions on Medical Imaging, 36(8), 2017

- Pulmonary fissure classification using Gaussian Mixture Modelling and Markov Random Field regularisation
- 3D Lobe segmentation using the fissure segmentation and a population model of the fissures

Manifold Learning of COPD
MICCAI, 10435, 586-593, 2017, acceptance rate≈30%

- Development of a novel descriptor to quantify patterns of tissue classification
- Manifold fusion of separate manifolds of COPD phenotypes learnt using Isomap
- Kernel smoothing regression to identify trajectories of disease progression

Activities

Reviewer: MICCAI (2017-20), MIDL (2019-20), CVPR (2020), ICML (2020), IEEE TMI (2016-19)

Program Committee

- UNSURE workshop on Uncertainty and Safety in Medical Imaging at MICCAI 2019
- DART workshop on Domain Adaptation and Representation Transfer at MICCAI 2019

Selected Awards

MICCAI Outstanding Reviewer 2019
International Conference on Medical Image Computing and Computer Assisted Interventions
Awarded to outstanding reviewers

MICCAI Travel Award 2018
International Conference on Medical Image Computing and Computer Assisted Interventions
Awarded to 50 researchers

British Lung Foundation Travel Award 2014
European Respiratory Society conference
Awarded to early-career clinical/non-clinical researchers in the respiratory field

The Professor Sir Michael Brady Prize 2012
University of Oxford, Department of Engineering Science
Awarded for overall best performance in the M.Sc. in Biomedical Engineering

Blonstein Award 2011
University College London, Department of Mechanical Engineering
Awarded for best performance in the final year engineering design module

University College London Dean's List 2011
University College London
Awarded for achieving a degree average of at least 75%