

Luke Shepherd Curriculum Vitae

luke.shepherd.17@ucl.ac.uk
lukemshepherd.github.io

Education

University College London *Social Science with Quantitative Methods BSc (2017 - Present) Upper 2:1 Predicted*

University of Southampton *Politics and International Relations (2016 - 2017) Grade: 68*

Abingdon School *(2010-2015)*

Publications

Deep Placental Vessel Segmentation for Fetoscopic Mosaicking. *Banno S, Vasconcelos F, Shepherd LM, Poorten EV, Vercauteren T, Ourselin S, Deprest J, David AL, Stoyanov D, (2020) International Conference on Medical Image Computing & Computer Assisted Intervention/ Number 23/ October 2020.*

Using segmented static CBCT scan to aid reconstruction of a dynamic scan of a rigid foot and ankle structure. *Djurabekova N, Goldberg A, Hawkes D, Long G, Shepherd LM, Betcke MM, (2020) International Conference on Image Formation in X-Ray Computed Tomography/ Number 6/ August 2020*

Challenges and opportunities in conducting mesophotic reef research. *Andradi-Brown DA, East A, Shepherd LM, Stockdale EJ, Rogers AD (2016) Reef Encounter 31(1):26-31 / Number 43 / April 2016.*

Posters

Thinking Deep: The Scientific Surveying of Mesophotic Reefs. *East A, Shepherd LM, Stockdale EJ, Rogers AD (2015) Poster Presented at: Reef Conservation UK 2015)*

Teaching

GEOG0027: Principles and Practice of Remote Sensing *(Spring 2019)*

Was the teaching assistant to Dr Qingling Wu and Prof Philip Lewis; assisted with demonstrating of the computer practicals.

Mentorships

MICCAI Mentorship Program *(September 2020 - Current)*

Mentorship scheme for early career researchers. Mentored by Antonio R. Porras.

Research Positions

Independent SAGE *(October 2020 - Current)*

Worked for Prof. Christina Pargel researching and creating graphs for her Independent SAGE briefings and public communicating the effect of COVID-19.

Surgical Robot Vision Research Group *(July 2019 - Current)*

Built a CNN segmentation model using a UNET architecture with a Resnet encoder for in-utero surgery videos with Dr Sophia Bano. Using progressive resizing and mixed-precision training to improve model performance. The output was used for registering video frames from the surgery.

Research Positions *Continued*

Vision and Imaging Science Group (*June 2019 - March 2020*)

Worked with Dr Marta Betke and Nargiza Djurabekova on limited-angle CT reconstructions of the ankle. Creating the **PCA2** library that can load, plot, provide summary analysis and apply a transformation and translation that aligns two bones of different positions and orientations in 3D space. Using *nbdev* to create documentation and manage tests.

3DImpact (*February 2019 - March 2019*)

Created an machine learning training data for visual tagging of construction-specific objects.

Conflict Analysis Lab (*July, September 2018*)

Worked with Dr Nils Metternich using DMSP-OLS satellite imagery to measure and model active and post-conflict areas. Coded the inter-pixel calibration of the satellite images and researched the most appropriate clustering algorithm.

Harris Lab (*July 2018*)

Worked with Dr Adam Harris in the designing an online experiment examining prospect theory and decision by sampling. Developed the interactive R Shiny app deployed through *Digital Ocean*.

Courses and Qualifications

SCA Barista Skills: Foundation

UCL Global Citizenship Program: Global Environmental Justice (*29th May-8th June 2018*)

Exploring the impacts of anthropogenic climate change and the wider issue of environmental justice; examining the Paris agreements and the underlying UNFCCC framework.

Technical

Programming: Python, R, Shell, Bash

Visualisation Libraries: Matplotlib, Seaborn, Mayvi, Bokeh

Markup: HTML, CSS, L^AT_EX

Deep Learning Libraries: PyTorch, Fastai

Containerisation: Docker

GIS Programs: ENVI, CloudCompare

Version Control: Git

Professional Memberships

The Royal Institution (*RI*)

Association for Geographic Information (*AGI*)

References

Dr Sophia Bano
sophia.bano@ucl.ac.uk

Dr Marta Betcke
m.betcke@ucl.ac.uk