Luke Shepherd Curriculum Vitae

luke.shepherd.17@ucl.ac.uk
github.com/lukemshepherd

Education

University College London *Social Science with Quantitative Methods BSc (2017- Present)*

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, Ourselinm 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 *(August 2020)*

Mentorship scheme for early career researchers.

Research Positions

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.

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 ***Vox*** 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.

3DImpact (*February 2019 - March 2019)*

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

RebelTrack/ RebelCast *(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

UCL Global Citizenship Programme: 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, Bash

Markup: HTML, CSS, LaTeX

Deep Learning Libraries: PyTorch *(Fastai)*

GIS Programs: ENVI, CloudCompare

Containerisation: Docker

Version Control: Git

References

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

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