

Luke Shepherd Curriculum Vitae

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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, 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)*

Employment

Erkia *(June 2020 - Current)*

Cyber security researcher. Details on request subject to NDA.

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 - April 2020*)

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, L^AT_EX

Deep Learning Libraries: PyTorch (*Fastai*)

GIS Programs: ENVI, CloudCompare

Containerisation: Docker

Version Control: Git

References

Dr Sophia Bano
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Dr Marta Betcke
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