

Work Experience

- **Apple Inc.** - *Applied Research Scientist* **Apr. 2022 - Present**
I work in the Spatial Perception Team in the AI group. My research involves developing novel algorithms for 3D data.
- **Fujitsu Research** - *Senior Research Scientist* **Aug. 2021 - Mar. 2022**
My research is in the field of 3D scene understanding, and specifically in reducing the requirement of labels and supervision to train machine learning models. I am actively developing novel architectures to perform 3D scene understanding tasks using self/weakly and unsupervised techniques.
- **Adobe** - *Research Scientist Intern* **May 2021 - Aug. 2021**
I undertook a 3 month internship in the Creative Intelligence Lab, working on geometrically driven image relighting from single-view images. The research is currently under peer-review.
- **Decoded** - *Data science / Machine learning coach* **Sep. 2018 - May 2021**
Clients include; Google DeepMind, IBM, UBS, Societe Generale, Fidelity and Siemens. I was responsible for delivering both high-level management and low-level apprenticeship workshops.
- **UCL** - *Post Graduate Teaching Assistant* **Sep. 2018 - May 2021**
Modules include; Image Understand, Geospatial Programming and Data Analysis. Developed and run practicals in computer vision in python.
- **UCL** - *Research Assistant* **Jan. 2019 - Jul. 2019**
Developing an open-source synthetic 3D point cloud dataset for large-scale machine learning algorithms.

Education

- **University College London (UCL)** **Sep. 2017 - Apr. 2022**
Doctorate of Philosophy (Ph.D) – 3D Computer Vision and Machine learning
Thesis title: *Label Efficient 3D Scene Understanding*
- **University College London (UCL)** **Sep. 2016 - Sep. 2017**
Master of Science, Remote Sensing and Environmental Mapping (Distinction)
- **University of Wales (TSD)** **Sep. 2013 - Jul. 2016**
Bachelor of Science, Environmental Conservation (First Class Honours)
- **Gower College Swansea** **Sep. 2010 - Jul. 2012**
A Levels: Mathematics, Further Mathematics, Computing

Skills

- Python
- C / C++
- Git / Version Control
- Linux
- \LaTeX
- Photogrammetry
- Image Processing
- Computer Vision
- Geometry Processing
- Machine Learning
- 3D Visualisation
- Mathematics

Certificates and Awards

- CAA Commercial Drone Pilot License
- UCL Graduate Research Scholarships for Cross-disciplinary Training (Computer Graphics)
- MDPI Remote Sensing Best Paper Award 2021

Selected publications

- **Griffiths, D.**, Ritschel T, J. and Philip, J. OutCast: Outdoor Single Image Depth Relighting with Cast Shadows. Eurographics 2022: 43rd Annual Conference of the European Association for Computer Graphics. April 25-29, 2022.
- **Griffiths, D.**, Boehm, J. and Ritschel, T. Curiosity-driven 3D Object Detection without Labels. International Conference on 3D Vision (3DV) 2021.
- Sanchez Castillo, E., **Griffiths, D.**, Boehm, J. Semantic Segmentation of Terrestrial LIDAR Data Using Co-Registered RGB Data. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLIII-B2-2021, 2021, pp.223-229
- **Griffiths, D.**, Boehm, J. and Ritschel, T. Finding Your (3D) Center: 3D Object Detection Using a Learned Loss. Proceedings of the European Conference on Computer Vision (ECCV), 2020.
- **Griffiths, D.** and Boehm, J. 2019. SynthCity - A large scale synthetic point cloud. Pre-print submitted to ArXiv, arXiv:1907.04758.
- **Griffiths, D.** and Boehm, J., 2019. A Review on Deep Learning Techniques for 3D Sensed Data Classification. Remote Sensing (Vol. 11, No. 12, pp1499).
- **Griffiths, D.** and Boehm, J., 2019. Weighted Point Cloud Augmentation for Neural Network Training Data Class-Imbalance. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLII-2/W13, 981-987. ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences
- **Griffiths, D.** and Boehm, J., 2019. Improving public data for building segmentation from Convolutional Neural Networks (CNNs) for fused airborne lidar and image data using active contours. ISPRS Journal of Photogrammetry and Remote Sensing, 154, pp.70-83.
- **Griffiths, D.** and Boehm, J., 2018, May. Rapid object detection systems, utilising deep learning and unmanned aerial systems (UAS) for civil engineering applications. In International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences-ISPRS Archives (Vol. 42, No. 2, pp. 391-398). International Society for Photogrammetry and Remote Sensing (ISPRS).
- **Griffiths, D.** and Burningham, H., 2018. Comparison of pre-and self-calibrated camera calibration models for UAS-derived nadir imagery for a SfM application. Progress in Physical Geography: Earth and Environment, p.0309133318788964.

Scientific community

- Scientific committee member - International Society of Photogrammetry and Remote Sensing (ISPRS): Laser Scanning workshop
- Peer reviewing - European Conference on Computer Vision (ECCV), SIGGRAPH, International Society of Photogrammetry and Remote Sensing (ISPRS) journal, MDPI Remote Sensing journal, MDPI Sensors journal, Reports on Geodesy