Oliver King

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Skills

Programming	Python [*Xarray, NumPy, GeoPandas, Rasterio, Matplotlib*], JavaScript, R, Julia.
GIS Software	GDAL/OGR, QGIS, ArcGIS Pro & Online, Google Earth Engine, SNAP.
Computing	Git, GitHub, Bash, SQL [*Oracle, Postgres*], Markdown, Jupyter, Windows, Linux.
Satellite Data	Sentinel-2, Landsat, PlanetScope, ICESat-2, Sentinel-1, AVIRIS, MODIS.

Education

2023–24 **MSc Earth Observation & Geoinformation Management | *Distinction***
The University of Edinburgh, School of GeoSciences

- Graduated with **Distinction** at an **80%** average.
- Awarded prize for **Best Dissertation**, which processed, analysed, and visualised terabyte-scale multi-dimensional satellite and climate datasets in Python to assess drivers of glacier retreat. **[GitHub]**
- *Relevant modules: Active Remote Sensing, Passive Earth Observation, Spatial Analysis, Spatial Databases, Spatial Software Engineering.*
- *Highlighted work:*
  - Processed two decades of **ArcticDEM** data, utilising cloud STAC APIs and Python.
  - Analysed cloud-based **gridded climate reanalysis data** against sensor networks.
  - Built command-line **ground-finding algorithm** for **full-waveform lidar** data.
  - Detected and measured marine oil spills with **Sentinel-1 SLC** data using **SNAP**.
  - Analysed UAV point clouds and **photogrammetry orthomosaics** with **Pix4D**.
  - Populated and queried **spatial** and non-spatial **Oracle and Postgres databases**.
  - Constructed **animations**, **maps**, **graphs**, and multi-panel figures with **Matplotlib**.

2020–23 **BSc Hons Geography | *First Class Honours***
Lancaster University

- Awarded the University **Chancellor's Medal**, presented for exceptional merit to the **top eight** students of the entire graduating cohort.
- Graduated with **First Class Honours** at an **87%** average.
- Completed minor subject in **Computer Science** at **First Class** with **90%** average.
- Awarded prize for **Best Dissertation**, which used ICESat-2 **satellite altimetry data** and high-resolution **digital surface models** to study glacier behaviour in Greenland.
- *Relevant modules: Spatial Analysis and GIS, Remote Sensing and Image Processing.*
- *Highlighted work:*
  - Developed a **wildfire spread probability model** plugin for **QGIS** using **Python**.
  - **Assessed forest health** after hurricane impact using **PlanetScope** and ArcGIS Pro.

Experience

Oct 2024 – Jan 2025 **PhD Candidate**
University of Cambridge, Scott Polar Research Institute

- **Awarded** a competitive **UKRI Natural Environment Research Council studentship** [£100,000] through the Cambridge Climate, Life and Earth (C-CLEAR) Doctoral Training Partnership.

- PhD project focussed on measuring **glacier velocity response** to hydrology in Greenland using **satellite remote sensing**. **[GitHub]**
- **Withdrew from programme** pursue a career outside of academia.
- *Relevant modules: Foundations in Applied Statistics, Basic Quantitative Analysis.*
- *Highlighted work:*
  - Developed **programmatic validation of satellite datasets** using GPS networks.
  - Wrote **Google Earth Engine** scripts to process **Landsat** and **Sentinel-2** data.
  - Used **STAC APIs** in Python to access, filter, and subset **cloud-hosted imagery**.
  - Restructured geospatial data to common multi-dimensional **NetCDF** formats.
  - Collaborated on research methods with partners in academia and industry.

May 2023 – Apr 2024 **Research Assistant [Remote Sensing & Machine Learning]**
Lancaster University, Environment Centre

- **Implemented remote sensing and machine learning methods** for a project developing novel tools to measure the spread of a damaging plant species in England.
- Developed a full-stack **deep-learning convolutional neural network** (CNN) for image classification using Python [**TensorFlow**, Keras, OpenCV].
- Prepared, edited, and revised a refereed conference paper manuscript as **first author** [1,500 words]. **[Zenodo]**
- Selected to deliver an **oral presentation** [20 minutes] at the 2024 GIS Research UK (**GISRUK**) conference at the University of Leeds.
- Collaborated with experts in Ecology, GIS, and Artificial Intelligence on method development and research direction.
- Processed very high resolution aerial RGB imagery in batch using **GDAL**.
- Used ArcGIS Pro to generate training dataset of **image annotations** and **analyse spatial patterns** in species distribution over time.

Jun – Jul 2019 **Intern**
JBA Consulting Ltd.

- Collected field measurements to generate **AutoCAD** model of an unstable bridge.
- Used modelling to produce a geotechnical report on bridge stability and flood risk.

Publications

2024 **King, O.G.**, Whyatt, J.D., Zhang, C., Stevens, C., 2024. **Automatic detection of native invasive rush species with aerial imagery and deep learning**. 32nd Annual Geographical Information Science Research UK Conference (GISRUK), University of Leeds, UK. doi:10.5281/zenodo.10926048

Awards

2024	Best Dissertation, *MSc Earth Observation*	The University of Edinburgh, Sch. of GeoSciences
	C-CLEAR DTP Studentship, *~£100,000*	Natural Environment Research Council, UKRI
2023	Chancellor's Medal	Lancaster University
	Peter John Vincent Geography Prize	Lancaster University, Environment Centre
	Best Dissertation, *BSc Hons*	Lancaster University, Environment Centre
	Best Performance [Overall], *BSc Hons*	Lancaster University, Environment Centre
2022	Best Performance [Year 2], *BSc Hons*	Lancaster University, Environment Centre
2020	Excellence Scholarship, *£6000*	Lancaster University