**Theodore Kerr**

**(240) 281-1498 Bethesda, Maryland** [GitHub](https://github.com/tkerr122) **theodoremkerr@gmail.com**

**SKILLS**

* **Python: GDAL, NumPy, GeoPandas, Pandas** for vector and raster manipulation, and interacting with APIs
* **R: LidR, LasR, ForEach, DoParallel, Future, Raster** for lidar data processing
* **QGIS:** Image interpretation and advanced digitizing
* **Bash, SQL, HTML, CSS, JavaScript, PHP, Leaflet, React**
* **ArcGIS Pro, ArcPy, StoryMaps, Mapbox, GitHub**
* **Technical Training:** Completed 3-day Terrestrial Laser Scanner Training (April 2022)
* **Languages:** Fluent in French, capable of professional communication in research and fieldwork contexts

**WORK EXPERIENCE**

**Global Land Analysis and Discovery (GLAD) Laboratory, University of Maryland**

**Faculty Specialist** (November 2022 – Present)

* Spearhead a new project extracting Canopy Height Models from lidar data using R and Python libraries
* Digitize polygon training data for deep learning (CNN) model trained on Planet imagery in QGIS
* Execute data processing for raster (image) and vector (polygon) datasets in a cloud computing (HPC) environment
* Conduct fieldwork to support data collection efforts
* Contribute to peer-reviewed publications on remote sensing and land cover change

**Thought Delivery Systems, Inc.**

**GIS Team Member & Project Manager** (February 2021 – November 2022)

* Collected and digitized geographic data in QGIS to create high-quality, engaging maps for presentations to clients
* Initiated a new project mapping the locations of Champion Trees worldwide
* Designed engaging visualizations of geographic data using StoryMaps and Mapbox for client presentations

**NASA Global Ecosystem Dynamics Investigation (GEDI), University of Maryland**

**Faculty Assistant** (September 2021 – September 2022)

* Conducted lidar data collection in Mozambique as part of a field research team
* Edited a technical paper comparing two algorithms for classifying forest degradation
* Adapted existing R scripts to generate a forest biomass density dataset for the Democratic Republic of the Congo

**CURRENT PROJECTS**

**Extracting Canopy Height Models from Lidar Data**

* Use Bash to batch download laz files and run GDAL commands to mosaic rasters
* Use LidR library in R to filter points, extract a CHM, and write to disk using parallel processing techniques
* Use GDAL in Python to read in a CHM and clean up errors resulting from powerlines, water, and slope areas

**Collecting Training Data for Convolutional Neural Network –** Buildings and Tree Canopy

* Use QGIS to collect vector polygons of yes/no training for the CNN model
* Use Python to aggregate training files before inputting to the model

**DIST-Alert Project**

* Collaborate with other team members during sample interpretation to identify areas of disturbance at a global scale

**EDUCATION**

**University of Maryland, College Park, MD**

* **Master of Geospatial Information Science** (August 2023 – Present)
* **Bachelor of Science in Environmental Science and Policy** – Land Use concentration (May 2022)