

Krishna Karra

krishna.karra@gmail.com ❖ (571) 499-3450 ❖ Santa Fe, NM ❖ <https://earthsight.space>

PROFESSIONAL EXPERIENCE

Ceres Imaging, *Geospatial Data Scientist*

2023 – Present

- Developing models based on satellite imagery to quantify sustainable management practices (e.g. tillage, cover cropping, biodiversity) on agricultural lands.
- Designing a satellite imagery software suite built on Google Earth Engine to rapidly prototype new models, facilitate data access and interactively visualize results.

The Cooper Union for the Advancement of Science and Art, *Adjunct Professor*

2021 – Present

- Teaching a graduate level class in the Electrical Engineering department, titled “Fundamentals of Remote Sensing and Earth Observation.”

Earth Genome, *Senior Associate*

2022 – 2023

- Led the development of the [Earth Index](#), a search tool for satellite imagery, powered by (1) information-rich embeddings calculated on satellite imagery tiles, and (2) a database for fast retrieval of nearest neighbors.
- Developed a user interface that allows users to click a location, instantly returning areas that most closely resemble the input. Select applications:
 - Detected newly mined areas in the Amazon Basin to support Amazon Mining Watch and the Pulitzer Center.
 - Mapped open-waste sewage pools in Alabama to support environmental justice programs sponsored by the U.S. government.
 - Identified destroyed villages in Myanmar due to ethnic violence in the ongoing Rohingya conflict.

Earthsight LLC, *Self Employed*

2020 – 2023

- Founded a consulting firm specializing in geospatial analysis and data visualization. Selected clients:
 - *SkyTruth* - developed algorithms to (1) identify oil slicks in the ocean using radar satellite imagery, and (2) associate slick detections with vessels that may have been responsible.
 - *Impact Observatory* - led the model development for the first iteration of [ESRI Landcover](#), a global land use map derived from Sentinel-2 satellite imagery.
 - *Earthrise Media* - implemented core components of the model pipeline for [Global Plastic Watch](#), a system that identifies plastic waste sites from Sentinel-2 satellite imagery.
 - *The New York Times* - built data and visualization pipelines for multiple stories that utilized earth observation data.

Descartes Labs, *Applied Scientist*

2018 - 2020

- Architected an earth observation pipeline that utilized multispectral and radar satellite imagery to monitor oil gas activity in the Permian Basin.
- Mapped the growth of ex-urban areas in the U.S. over a decade by training a deep learning model that detected impervious surfaces from Landsat imagery.
- Tracked the decrease in pollution over cities across the globe during the COVID-19 pandemic using Sentinel 5P satellite data.
- Developed software tools for journalists to rapidly access satellite imagery using the Descartes Labs platform.

Kickview Corporation, *Research Engineer*

2017 - 2018

BAE Systems, *Signal Processing Engineer, Senior Principal Research Engineer*

2011 - 2012, 2014 - 2017

BIT Systems, *Signal Processing Engineer*

2012 - 2014

EDUCATION

University of Southern California, *M.S. Electrical Engineering*

May, 2015

The Cooper Union for the Advancement of Science and Art, *B.E. Electrical Engineering*

May, 2011

SKILLS

Programming: Python, C/C++, MATLAB, Git, Google Cloud, Amazon Web Services

GIS: GDAL, Google Earth Engine, Leaflet, Mapshaper, QGIS, PostGIS

ACADEMIC PUBLICATIONS

- “[Satellite monitoring of terrestrial plastic waste](#)”, Kruse et al., *PLOS ONE*, Jan 18 2023
- “[Global land use/land cover with Sentinel 2 and deep learning](#)”, Karra et al., *IEEE IGARSS*, Jul 11 2021
- “[Modulation recognition using hierarchical deep neural networks](#)”, Karra et al., *IEEE DySpan*, Mar 6 2017

PATENTS

- “[Systems and methods to categorize mapping categories of pixels](#)”, *Filed by Impact Observatory*, Dec 29 2020
- “[Automated RF Dataset Creation](#)”, *Filed by KickView Corporation*, Jun 16 2020

SELECTED MEDIA

Bylines (Freelance)

- “[A Vivid View of Extreme Weather: Temperature Records in the U.S. in 2021](#)”, *The New York Times*, Jan 11 2022
- “[The True Colors of America’s Political Spectrum are Gray and Green](#)”, *The New York Times*, Sep 2 2020

Graphics (while at Descartes Labs)

- “[How coronavirus stalled climate change momentum](#)”, *Financial Times*, Apr 13 2020
- “[Mexico is illegally destroying protected mangrove trees to build an oil refinery](#)”, *Quartz*, Mar 6 2020
- “[Newly released satellite data reveals the pattern of record warmth in 2019](#)”, *The Washington Post*, Jan 29 2020
- “[A Decade of Urban Transformation, Seen From Above](#)”, *The New York Times*, Dec 27 2019
- “[The U.S. cranberry harvest explained in four charts](#)”, *National Geographic*, Nov 27 2019
- “[Fantastic fall foliage and where to find it](#)”, *The Washington Post*, Oct 9 2019
- “[The Bahamas, Before and After Hurricane Dorian](#)”, *The New York Times*, Sep 5 2019