**Geospatial Image Analysis for High-Throughput Plant Phenotyping [ARS: Geospatial and ML]**

Geospatial image analysis has become increasingly popular in the plant agricultural science community, particularly among geneticists, physiologists, and agronomists seeking to extract multiple phenotypes (traits) from multiple experimental plots in a time-series over a growing season. As imaging systems and field-based platforms (i.e. unmanned aerial systems and terrestrial carts) become more affordable, an increasing number of USDA ARS research units are incorporating geospatial image analysis into their programs. While out-of-the-box systems make collecting imagery data relatively easy, the storage, management, and analysis of these data are not always straight forward. Supervised machine learning and other AI technologies combined with high performance computing (HPC) equipped with graphics processing units (GPU) provide opportunities to develop novel processing pipelines capable of returning desired phenotypes within seconds to minutes.

The successful candidate will have the opportunity to learn a range of computational skills needed to conduct complex geospatial image analysis for phenotype extraction from red|green|blue, fluorescence, hyperspectral, thermal, and laser scanning imaging systems mounted to terrestrial and/or unmanned aerial systems. The successful candidate will also learn supervised machine learning algorithms and other AI technologies relevant to geospatial image analysis and will develop and co-lead ARS-wide workshops resulting in a community of scientific practice on geospatial image analysis. The successful candidate will have the opportunity to collaborate with multiple USDA ARS scientists on data analysis projects, and to write collaborative scientific papers dealing with geospatial images and ML across multiple spatial and temporal scales.

**Preferred skills:**

Experience with image data

Experience with analysis of time series data

Experience working with large, diverse datasets and machine learning approaches

Experience with GIS or ENVI software

Proficiency in python or R

Strong computational skills

Strong oral and written communication skills

**Location:** US Arid-Land Agricultural Research Center, Maricopa, AZ <https://www.ars.usda.gov/pacific-west-area/maricopa-arizona/us-arid-land-agricultural-research-center/>