





AMNINDER SINGH

Data Scientist

CONTACT

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SKILLS

- Programming: Python (pandas, NumPy, matplotlib, seaborn, PySpark, etc.), Matlab, and R.
- Geospatial: Google Earth Engine, Descartes Labs, ArcGIS, QGIS.
 - Python: xarray, geopandas, shapely, rasterio, pystac_client.
- Machine Learning and Deep Learning: scikit-learn, TensorFlow, Keras, PyTorch.
- Version control: Git, GitLab, GitHub.
- Soil and environmental sensor network data acquisition systems.
- Geophysical soil sensing.
- Deployment: Django, Streamlit.
- Other: SQL, AWS, Google Cloud Platform.

EDUCATION

Ph.D. | Environmental Sciences (Soil & Water)

University of California, Riverside
2018 – 2021

MS | Plant Science

California State University, Fresno
2015– 2017

BSc | Agriculture (Soil science, Agronomy and Agroforestry)

Punjab Agricultural University, Ludhiana |
Punjab, India
2011 – 2015

EXPERIENCE

DATA SCIENTIST, REMOTE SENSING Climate LLC | Nov 2023 – Present

- Development and testing of new and existing pipelines to generate field-level features from remote sensing data to support the detection of cover crop/tillage practices and deliver historical crop information.
- Devised a quantitative approach to assess the quality/reliability of the ground-truth labels from grower fields.

GEOSPATIAL DATA SCIENTIST (CONTRACT) Climate LLC | Nov 2022 – Nov 2023

- Performed EDA, data cleaning, and leveraged existing pipelines to deliver high-quality remote sensing data to stakeholder teams within set timelines.
- Collaborated with team members in designing, developing, and testing geospatial pipelines for remote sensing data extraction and machine learning model deployment.
- Evaluated and analyzed spatial indexing systems such as Geohash, H3, and S2 to understand their viability for different use cases. Made recommendations and contributed to implementing spatial indexing systems, ensuring alignment with the team's requirements.

POST-DOCTORAL SCHOLAR UC, Riverside & [USDA Salinity Lab](#) | Jan 2022 – Oct 2022

- Leveraged Google Earth Engine's Python API and Planet Labs APIs to get satellite data, including synthetic aperture radar (SAR), multispectral optical imagery, land use/crop type (USDA CDL, USDA NLCD), soil properties (SSURGO, POLARIS), weather (GRIDMET), and SRTM Digital Elevation Data (DEM).
- Implemented machine learning models (Random Forest, LightGBM) for soil moisture estimation using Python libraries.
- Use vegetative indices derived from optical imagery to get phenological parameters of a crop and study relationships with soil salinity/texture.
- Collaborated with private companies and data scientists to implement new strategies and fulfill project requirements.
- Participated in soil surveys using electromagnetic (EM) induction, L-band radiometer, and soil sampling campaigns.

GRADUATE STUDENT RESEARCHER UC, Riverside | Jan 2018 – Dec 2021

Dissertation: *Advancing Urban Landscape Irrigation Management using Smart Controllers and Machine Learning-based Models.*

- Sampling and analyzing soil hydrology field measurements, including soil water potential, soil volumetric water content, infiltration, evapotranspiration, and weather data.
- Developed deep learning models including Artificial Neural Networks (ANN), Long Short-Term Memory (LSTM), and Convolutional Neural Networks (CNN) utilizing soil hydrology and time-series weather data.
- Collaborated and participated in several field campaigns supporting remote sensing projects.

GRADUATE RESEARCH ASSISTANT CSU, Fresno | Aug 2015 – Dec 2017

Thesis: *Use of EM-38 soil surveys in forage fields at a saline drainage water reuse site to calibrate a hydro-salinity model for decision support.*

- Led soil surveys, sampling, and analysis to map soil salinity using geophysical measurements from an electromagnetic (EM) induction instrument.
- Analysis of the data using ArcGIS and R.