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EDUCATION

Northeastern University PhD, Interdisciplinary Engineering Dissertation: Understanding the Pattern and Drivers of Vegetation Distribution using Remote Sensing Data and Machine Learning Approaches	Boston, MA 2015 - present
Indian Institute of Technology Kharagpur Five year dual degree program of B.Tech (Hons.) in Agricultural and Food Engineering and M.Tech in Financial Engineering	Kharagpur, India 2010 - 2015

AWARDS/ACHIEVEMENTS

First place poster presentation among student entries Hydrology section of the American Meteorological Society (AMS) annual meeting	2020
Distinguished Dean's Fellowship College of Engineering, Northeastern University	2015-'16
Graduate student Scholarship Ministry of Human Resource Development, Government of India	2014-'15
Ranked among top 1% of the students , Joint Entrance Examination the most competitive Engineering entrance exam conducted (in Physics, Chemistry and Math) for undergraduate admissions in India	2010

DOCTORAL RESEARCH

Topic 1: **Within-season crop identification using satellite data analytics**

Collaborators: Scientists from **Oak Ridge National Laboratory, TN and USDA Forest Service, NC**

Won the **Best Student Poster award** in the hydrology section, AMS annual meeting, 2020

- Timely and accurate knowledge about the geospatial distribution of crops at national scales is crucial for forecasting crop production and estimating crop water use.
- Developed a MODIS NDVI-based semi-supervised machine learning classifier to enable near-real-time monitoring of crops at continental scales.
- This work involved processing of large geospatiotemporal datasets in an HPC environment.

Topic 2: **Mapping vegetation using high-resolution airborne hyperspectral imagery**

Collaborators: Scientists from **Oak Ridge National Laboratory, TN and University of Alaska, AK**

- Created high-resolution (5m) watershed-scale plant community maps using Deep Neural Network-based classification of airborne hyperspectral imagery collected from NASA AVIRIS-NG.
- Developed an environmental niche model to understand the drivers (climatological, topographic and hydrologic) of plant community distribution.

Topic 3: **Understanding the impact of mean and extreme weather on crop yield**

Collaborators: Scientists from **NASA Ames Research Center/BAERI, CA**

- Private businesses as well as public sector and federal agencies are interested in the predictive understanding of weather impacts on crop yield.
- Employed linear and nonlinear methods for pairwise dependence and regression for improved scientific understanding and enhanced predictive modeling.

PUBLICATIONS

PEER-REVIEWED JOURNALS

Konduri, V. S., Kumar, J., Hargrove, W., Hoffman, F. M., Ganguly, A. R. Mapping Crops Within the Growing Season Across the United States. *Remote Sensing of Environment*. doi: <https://doi.org/10.1016/j.rse.2020.112048>

Konduri, V. S., Thomas J. Vandal, Sangram Ganguly, and Auroop R. Ganguly. "Data Science for Weather Impacts on Crop Yield." *Frontiers in Sustainable Food Systems (2020)*: 52. doi: <https://doi.org/10.3389/fsufs.2020.00052>

Konduri, V. S., Kumar, J., Hoffman, F. M., Salmon, V. G., Iversen, C. M., Breen, A. L. Hargrove, W. W. Understanding the Pattern and Drivers of Plant Communities across the Arctic Tundra Landscape. *Manuscript in Preparation*

PEER-REVIEWED CONFERENCE WORKSHOPS

Konduri, V. S., Kumar, J., Hoffman, F. M., Gouhier T. C., Ganguly, A. R. (2018). Physics-Guided Data Science for Food Security and Climate. *Fragile Earth: Theory Guided Data Science to Enhance Scientific Discovery Workshop*, Knowledge Discovery and Data Mining (KDD) Conference, London, August 2018.

Konduri, V. S., Vandal, T., Ganguly, S., Ganguly, A. (2018). Data Mining for Weather Impacts on Crop Yield. *Fragile Earth: Theory Guided Data Science to Enhance Scientific Discovery Workshop*, Knowledge Discovery and Data Mining (KDD) Conference, London, August 2018.

CONFERENCE PRESENTATIONS

Konduri, V. S., Kumar, J., Hargrove, W., Hoffman, F. M., Ganguly, A. R. (2020). In-Season Crop Mapping for the Continental United States. Poster presentation delivered at the 100th American Meteorological Society (AMS) Annual Meeting, Boston, MA, January 2020. **(First place poster presentation award)** URL: https://kvshashank.github.io/slides/AMS_2020_poster.pdf

Konduri, V. S., Kumar, J., Hoffman, F. M., Salmon, V. G., Iversen, C. M., Breen, A. L. Hargrove, W. W. (2019). Understanding the Pattern and Drivers of Plant Communities across the Arctic Tundra Landscape. Oral presentation delivered at the American Geophysical Union (AGU), Annual Fall Meeting, San Francisco, CA, December 2019. URL: https://kvshashank.github.io/slides/AGU_Presentation_2019.pdf

Konduri, V. S., Kumar, J., Hargrove, W. W., Hoffman, F. M., Ganguly, A. (2019). Using the Concept of Ecoregions for Large Area Crop Mapping. Oral presentation delivered at the International Association for Landscape Ecology (IALE), Annual Meeting, Fort Collins, CO, April 2019. URL: https://www.climatemodeling.org/~forrest/presentations/Konduri_US-IALE_20190408.pdf

Konduri, V. S., Kumar, J., Hoffman, F. M., Hargrove, W. W. and Ganguly, A. R. (2018), Estimating Crop Acreage over Regional Scale using Remote Sensing and Climate Data. Poster presentation delivered at the American Geophysical Union (AGU), Annual Fall Meeting, Washington D.C., December 2018. URL: https://www.geobabble.org/~hnw/Shashank_AGU_poster_2018.pdf

Konduri, V. S., Kumar, J., Hoffman, F. M., Ganguly, A. R., Hargrove, W. W. (2017). Spatiotemporal Analysis of Corn Phenoregions in the Continental United States. Oral presentation delivered at the American Geophysical Union (AGU), Annual Fall Meeting, New Orleans, LA, December 2017.

PROGRAMMING/SOFTWARE SKILLS

- Experience in handling multi-temporal moderate to high resolution remote sensing data in netCDF/GeoTIFF formats in Python and GRASS GIS
- **Programming:** Python, bash scripting and R
- **Deep learning Frameworks:** Keras
- **GIS software:** GRASS GIS, QGIS and ArcGIS
- **Geospatial Libraries:** GDAL/OGR, Rasterio, Shapely, GeoPandas
- **Version Control:** Git, Mercurial

- **OS:** Linux, Windows

POSITIONS OF RESPONSIBILITY

Teaching Assistant, Fluid Mechanics **Spring 2018**
Graded assignments and quizzes and held office hours for answering students' queries on the subject.

Student Chair, International Conference on Networked Digital Earth **March 2018**
In-charge of developing and maintaining the website for the research conference.

Teaching Assistant, Probability and Statistics **Fall 2016, Spring 2017**
Taught lectures, created study material, designed and graded assignments and conducted tutorial sessions for undergraduate students. Received excellent reviews from students in the anonymous feedback collected at the end of the semester.

Teaching Assistant, Civil and Environmental Engineering (CEE) **Spring 2017**
Helped in organizing the CEE Distinguished Seminar Series and responsible for the upkeep of the CEE design studio

FIELD WORK EXPERIENCE

Selected for the **Arctic Alaska Vegetation Field Course** June, 2020
This field course, organized by the University of Alaska Fairbanks, includes 2 days of classroom instruction followed by a 13-day excursion to learn about the vegetation, geology, permafrost, landforms, soils and wildlife of boreal, alpine and arctic environments in the state of Alaska.

Alaska Field Trip July 2019
Was part of a 4-member team that was tasked with collecting observations for various plant and soil properties from field plots spread across the Seward Peninsula, Alaska. This research is being funded by the Next-Generation Ecosystem Experiments (NGEE) **Arctic project of the US Department of Energy (DOE)**.

Internship, Iowa State University May 2013
Collected data for water quantity and quality from subsurface drainage flow monitoring stations at the university-owned field plots. This internship helped enhance understanding of water quality issues in agricultural landscapes and potential best management practices to mitigate water quality problems.

HOBBIES/INTERESTS

Enjoy doing theatre, hiking, yoga, listening to music and volunteering