Venkata Shashank Konduri

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EDUCATION

Northeastern University — Boston, MA
PhD, Interdisciplinary Engineering — 2015 - present
Dissertation: Understanding the Pattern and Drivers of Vegetation Distribution using Remote Sensing Data and Machine Learning Approaches

Indian Institute of Technology Kharagpur — Kharagpur, India
Five year dual degree program of B.Tech (Hons.) in Agricultural and Food Engineering — 2010 - 2015
and M.Tech in Financial Engineering

AWARDS/ACHIEVEMENTS

First place poster presentation among student entries — 2020
Hydrology section of the American Meteorological Society (AMS) annual meeting

Distinguished Dean's Fellowship — 2015-'16
College of Engineering, Northeastern University

Graduate student Scholarship — 2014-'15
Ministry of Human Resource Development, Government of India

All India Rank of 27, Agricultural Engineering subject — 2014
Graduate Aptitude Test in Engineering (GATE)

Ranked among top 1% of the students, Joint Entrance Examination — 2010
the most competitive Engineering entrance exam conducted (in Physics, Chemistry and Math) for undergraduate admissions in India

DOCTORAL RESEARCH

Topic 1: **Mapping Crops Within the Growing Season Across the United States**
Collaborators: Scientists from **Oak Ridge National Laboratory, TN and USDA Forest Service, NC**

- 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 generalized "cluster-then-label" model to map crops.
- Major crops can be mapped with sufficient accuracy across CONUS by late-August.

Topic 2: **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.
- Developed data-driven methods for improved scientific understanding and enhanced predictive modeling.
- Certain extreme weather indices like Heat Wave Index, Longest Dry Spell and Longest Wet Spell were found to have a profound impact on the crop yield.

Topic 3: **Understanding the pattern and drivers of plant community distribution across the Arctic**
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 hyperspectral imagery from NASA AVIRIS-NG.

- Currently working on understanding the drivers (climatological, topographic and hydrologic) of plant community distribution.

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

- Programming: Python (proficient), bash scripting and R (familiar)
- GIS software: GRASS GIS (proficient), QGIS
- Version Control: Git, Mercurial
- OS: Linux, Windows

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.

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

HOBBIES/INTERESTS

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