
BIOGRAPHICAL SKETCH

NAME: Zia Uddin Ahmed

POSITION TITLE: Research Associate Professor, RENEW, University at Buffalo

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Cornell University, Ithaca, NY	PhD	01/2009	Soil Chemistry/Environmental Information System
Institute of Postgraduate Studies in Agriculture, Bangladesh	MS	08/1993	Soil Science
Bangladesh Agricultural University, Bangladesh	BS	04/1990	Agricultural Science

Positions and Honors

2017- Present	Research Associate Professor, RENEW & Department of Public Health, University at Buffalo, NY,
2015 – 2018	Assistant Professor (Adjunct), Cornell University, NY, USA
2014 – 2017	GIS & Remote Sensing Scientist, CIMMYT, Mexico
2012-2014	Research Associate, Cornell University, NY, USA

Dr. Ahmed's research has focused on using geospatial tools for risk assessments of environmental contaminants. He had broad training in both the environmental modeling and geospatial sciences (GIS & Remote Sensing), with expertise in data science resulting in effective management of, and optimal output from, multi-disciplinary team. Areas of expertise include (1) data mining, (3) geographic information systems (GIS), remote proximal sensing, and geostatistics (4) linear/non-linear model, mixed effect model, multivariate statistics and machine learning and (5) database management, Key skills in environmental chemistry, statistics and geoinformatics such as GIS, remote sensing (optical and SAR images) and spatial/geostatistics and cloud computing.

Dr. Zia applied machine learning based geostatistical model to predict pyrogenic (black carbon) and particulate carbon in four states of the Western USA and soil carbon in Bangladesh. He also applied computer vision to detect field boundary in small scale-farming. Recently he applied geographically weighted machine learning to explore spatial heterogeneity predict lung and mortality in USA. He also apply. Explainable Artificial Intelligence (XAI) Exploring Spatial Variability disease mortality rate.

Recent Publications (2019-2021):

1. Quiñones, S., Goyal, A. & **Ahmed, Z.U.** Geographically weighted machine learning model for untangling spatial heterogeneity of type 2 diabetes mellitus (T2D) prevalence in the USA. *Sci Rep* **11**, 6955 (2021). <https://doi.org/10.1038/s41598-021-85381-5>
2. Zhang, Zhongyang, Zhiyang Xu, **Zia Ahmed**, Asif Salekin, and Tauhidur Rahman. "Hyperspectral Image Super-Resolution in Arbitrary Input-Output Band Settings." *arXiv preprint arXiv:2103.10614* (2021).

3. **Ahmed, Z. U.**, K. Sun, M. Shelly, L. Mu and Jo L. Freudenheim. Explainable Artificial Intelligence (XAI) for Exploring Spatial Variability of Lung and Bronchus Cancer (LBC) Mortality Rates in the contiguous USA, *Sci Rep (accepted)*.
4. Torres, M. N., J. E. Fontecha, J. L. Walteros, Z. Zhu, **Z. Ahmed**, J. P. Rodríguez, and A. J. Rabideau. "City-scale optimal location planning of Green Infrastructure using piece-wise linear interpolation and exact optimization methods." *Journal of Hydrology* 601 (2021): 126540.
5. Yang, R., **Ahmed, Z. U.**, Schulthess, U. C., Kamal, M. & Rai, R. Detecting functional field units from satellite images in smallholder farming systems using a deep learning based computer vision approach: A case study from Bangladesh. *Remote Sensing Applications: Society and Environment* 20, 100413, doi:<https://doi.org/10.1016/j.rsase.2020.100413> (2020).
6. Kurtz, J., Peter B. Woodbury, **Z. U. Ahmed**, and C. J. Peters. (2020) *Mapping U.S. Food System Localization Potential: The Impact of Diet on Foodsheds*. *Environmental Science & Technology* 2020 54 (19), 12434-12446.
7. Schulthess, U., **Ahmed, Z.U.**, Aravindakshan, S., Rokon, G.M., Kurishi, A.A. and Krupnik, T.J., 2019. Farming on the fringe: Shallow groundwater dynamics and irrigation scheduling for maize and wheat in Bangladesh's coastal delta. *Field crops research*, 239, pp.135-148.
8. Abdullah, H. M., Muraduzzaman, M., Islam, I., Giashuddin Miah, M., Mizanur Rahman, M., Rahman, A., Ahmed, N., and **Ahmed, Z.** (2019). Spatiotemporal dynamics of new land development in Bangladesh coast and its potential uses. *Remote Sensing Applications: Society and Environment* 14, 191-199. <https://doi.org/10.1016/j.rsase.2019.04.001>