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EDUCATION

1997-2001: Ph.D., Civil Engineering - Geomatics Program- University of Florida Minor in Computer and Information Engineering, University of Florida.

1991-1994 M.Sc., Civil Engineering (Public Works) Ain Shams University, Cairo, Egypt

1985-1990 B.Sc. Civil Engineering, Ain Shams University, Cairo, Egypt

SUMMARY OF RECENT PROFESSIONAL EXPERIENCE

2013-present: Associate Professor, University of Florida – Gulf Coast Research and Education Center - School of Forest Resources and Conservation – Geomatics Program, Florida.

2007-2013: Assistant Professor, University of Florida – Gulf Coast Research and Education Center - School of Forest Resources and Conservation – Geomatics Program, Florida.

2003-2007: Assistant Professor, Ain Shams University – Public Works Department – Surveying Engineering, Cairo, Egypt.

2001-2003: Visiting Research Scholar, Center for Advanced Transportation Systems Simulation at University of Central Florida, Orlando, Florida.

SUMMARUY OF RECENT GRANTS AND ACADEMIC ACTIVITIES

National Oceanic and Atmospheric Administration – National Geodetic Survey (NOAA-NGS) "Applications of the National Geodetic Reference System: Geospatial Modeling" (Co-PI – 1,992,078, 2018-2023)

Florida Strawberry Research and Education Foundation "Statistical Modeling of Strawberry Fruit Yield Using Weather and Image Information" (PI - $33,000, 2017-2018)

Highland Precision "Unmanned Aerial Systems for Monitoring Crop pests" (Co-PI - $145,000, 2015-2017)

National Institute of Food & Agriculture "Laurel Wilt of Avocado: Management of Unusual And Lethal Disease" (Co-PI - $3,456,195)

Awarded Army Corps of Engineers "Synthesizing High Resolution UAS Images Using Object-based Classification Algorithms for Natural Resource Monitoring Applications" (PI - $71,000, 2012-2015)

National Science Foundation "EAGER: Development of a Geospatial Soil-Crop Inference Engine for Smallholder Farmers" (Collaborator - $290,000, 2012-2015)

Awarded Florida Division of Forestry, US Forest Services "Stewardship Ecosystem Services Study Supplemental Analysis" (Co-PI - $35,000 ; 2011-2012)

Awarded National Science Foundation "RAPID- Plant species effects on rapid stabilization of nitrogen in the soil organic matter of mangrove ecosystems at risk from oil deposition" – (UF-PI -$169.000; 2010-2011)

Awarded Florida Division of Forestry, US Forest Services "Ecosystem Services of Forest Stewardship Lands" (Co-PI - $110,000 ; 2010-2012)

LIST OF COURSES TAUGHT (LAST 5 YEARS)

- Image Processing for Remote sensing (Graduate-Distance Education)
- Geographic Information systems Analysis (Graduate-Distance Education)
- GIS Fundamentals (Graduate-Distance Education)
- Geographic Information Systems (Undergraduate-Distance Education)
- Survey Computations (Undergraduate-Distance Education)
- Forest Information Systems (Undergraduate-Distance Education)

PUBLICATIONS, PRESENTATIONS, AND SPEECHES

1. Refereed journal publications (Last 8 Years)

Liu, T., Abd-Elrahman, A., Dewitt, B., Smith, S., Morton, J., & Wilhelm, V. L. (2019). Evaluating the potential of multi-view data extraction from small Unmanned Aerial Systems (UASs) for object-based classification for Wetland land covers. GIScience & remote sensing, 56(1), 130-159.

Abdulridha, J., Ehsani, R., Abd-Elrahman, A., & Ampatzidis, Y. (2019). A remote sensing technique for detecting laurel wilt disease in avocado in presence of other biotic and abiotic stresses. Computers and Electronics in Agriculture, 156, 549-557.

Abd-Elrahman, A., Britt, K., Benjamin, A., Barnes, G., Dewitt, B., Hochmair, H., Wilkinson, B., Smith, S. (2019) Geomatics education at the University of Florida: a case study of challenges and adaptation. Surveying and Land Information Sciences 78, 5-16.

Liu, T., Abd-Elrahman, A., (2018). Deep Convolutional Neural Network Training Enrichment using Multi-View Object-based Analysis of Unmanned Aerial Systems Imagery for Wetlands Classification. International Society of Photogrammetry and Remote Sensing Journal, 139, 154-170.

Liu, T., Abd-Elrahman, A. (2018). An Object-based Image Analysis Method for Enhancing Classification of Land Covers using Fully Convolutional Networks and Multi-View Images of small Unmanned Aerial System. Remote Sensing, 10(3), 457

Liu, T. & Abd-Elrahman, A. Liu, T. g & Abd-Elrahman, A. (2018). Multi-view Object-based Classification of Wetland Land covers using Unmanned Aerial System Images. Remote Sensing of the Environment, 216, 122-138.

Liu, T. & Abd-Elrahman, A. (2018). A fully learnable context-driven object-based model for mapping land cover using multi-view data from unmanned aircraft systems. Remote Sensing of the Environment, 216, 328-344.

Roberts, J., Koeser, A., Abd-Elrahman, A., Hansen, G., Landry, S. & Wilkinson, B. (2018). Terrestrial Photogrammetric Stem Mensuration for Street Trees. Urban Forestry & Urban Greening, 35, 66-71.

Liu, T., Abd-Elrahman, A., Morton, J., & Wilhelm, V. L. (2018). Comparing Fully Convolutional Networks, Random Forest, Support Vector Machine, and Patch-based Deep Convolutional Neural

Networks for Object-based Wetland Mapping using Images from small Unmanned Aircraft System. GISScience & Remote Sensing, 55:2, 243-264.

Xu, Y., Smith, S. E., Grunwald, S., Abd-Elrahman, A., & Wani, S. P. (2018). Effects of image pansharpening on soil total nitrogen prediction models in South India. Geoderma, 320, 52-66.

Ahmed, M, Abd-Elrahman, A., Escobedo, F., Martin, M. & Timilsina, N. (2017). Spatially-explicit modeling of multi-scale drivers of aboveground forest biomass and water yield in watersheds of the Southeastern United States. Journal of Environmental Management, 199, 158-171.

Xu, Y., Smith, S. E., Grunwald, S., Abd-Elrahman, A., Wani, S. P., & Nair, V. D. (2018). Estimating soil total nitrogen in smallholder farm settings using remote sensing spectral indices and regression kriging. Catena, 163, 111-122.

Xu, Y., Smith, S. E., Grunwald, S., Abd-Elrahman, A., Wani, S. P., & Nair, V. D. (2017). Spatial downscaling of soil prediction models based on weighted generalized additive models in smallholder farm settings. Environmental monitoring and assessment, 189(10), 502.

Pande-Chhetri, R., Abd-Elrahman, A., Liu, T., Morton, J., & Wilhelm, V. L. (2017). Object-based classification of wetland vegetation using very high-resolution unmanned air system imagery. European Journal of Remote Sensing, 50(1), 564-576.

Xu, Y., Smith, S., Grunwald, S., Abd-Elrahman, A. & Wani, S. (2017). Evaluating the effect of remote sensing image spatial resolution on soil exchangeable potassium prediction models in smallholder farm settings. Journal of Environmental Management, 200, 423-433.

Xu, Y., Smith, S., Grunwald, S., Abd-Elrahman, A., & Wani, S. P. (2017). Incorporation of satellite remote sensing pan-sharpened imagery into digital soil prediction and mapping models to characterize soil property variability in small agricultural fields. ISPRS Journal of Photogrammetry and Remote Sensing, 123, 1-19.

Delphin, S., Escobedo, F. J., Abd-Elrahman, A., & Cropper, W. P., 2016. Urbanization as a land use change driver of forest ecosystem services. Land Use Policy, 54, 188-199.

Clerici, N., Rubiano, K., Abd-Elrahman, A., Posada Hoestettler, J. M., & Escobedo, F. J., 2016. Estimating Aboveground Biomass and Carbon Stocks in Periurban Andean Secondary Forests Using Very High Resolution Imagery. Forests, 7(7), 138.

Abd-Elrahman, A., Sassi, N., Wilkinson, B., & Dewitt, B., 2016. Georeferencing of mobile ground-based hyperspectral digital single-lens reflex imagery. Journal of Applied Remote Sensing, 10(1), 014002-014002.

Friedman, M., Andreu, M., Zipperer, W., Northrop, R., Abd-Elrahman, A., , 2015. Species composition of forested natural communities near freshwater hydrologic features in an urbanizing watershed of West Central Florida. Florida Scientist 78:111-129

Szantoi, Z., Escobedo, F. J., Abd-Elrahman, A., Pearlstine, L., Dewitt, B., & Smith, S., 2015. Classifying spatially heterogeneous wetland communities using machine learning algorithms and spectral and textural features.Environmental monitoring and assessment,187: 1-15.

Pande-Chhetri, R., Abd-Elrahman, A., & Jacoby, C., 2014. Classification of Submerged Aquatic Vegetation in Black River Using Hyperspectral Image Analysis. Geomatica, 68:169-182.

Anne, N. J., Abd-Elrahman, A. H., Lewis, D. B., & Hewitt, N. A., 2014. Modeling soil parameters using hyperspectral image reflectance in subtropical coastal wetlands. International Journal of Applied Earth Observation and Geoinformation, 33:47-56.

Cademus, R., Escobedo, F. J., McLaughlin, D., & Abd-Elrahman, A., 2014. Analyzing Trade-Offs, Synergies, and Drivers among Timber Production, Carbon Sequestration, and Water Yield in Pinus elliotii Forests in Southeastern USA.Forests, 5:1409-1431.

Delphin, S., F. Escobedo, A. Abd-Elrahman, C. Wendell, 2013. Mapping potential carbon and timber losses from hurricanes using a decision tree and ecosystem services driver model Journal of Environmental Management. Environmental Management 129:599-607.

Szantoi, Z., F. Escobedo, A. Abd-Elrahman, S. Smith, and L. Pearlstine, 2013. Analyzing fine-scale wetland composition using high resolution imagery and texture features. International journal of Applied Earth Observation and Geoinformation 23:204-212.

Panda-Chhetri, R.and A. Abd-Elrahman, 2013. Filtering high-resolution hyperspectral imagery in a maximum noise fraction transform domain using wavelet-based de-striping. International Journal of Remote Sensing 34:2216-2235.

Timilsina, N., F. Escobedo, W. P. Cropper Jr., A. Abd-Elrahman, S. Delphin, and S. Lambert, 2013. A framework for mapping carbon hotspots and determining optimal forest structure and management regime characteristics. Environmental Management 114:293-302.

Dix, M., A. Abd-Elrahman, B. Dewitt, and L. Nash, 2012. Accuracy evaluation of terrestrial LiDAR and multibeam sonar Systems mounted on a survey vessel. Journal of Surveying Engineering, 138:203-213.

Nettleman, C.A. and A. Abd-Elrahman, 2012. A Contemporary Review of Deficiencies Associated with Calculated Tidal Datums and Property Ownership Law. Surveying and Land Information Science Surveying and Land Information Science 71:69-77.

Panda-Chhetri and R., A. Abd-Elrahman, 2011. De-striping hyperspectral images using wavelet transform and adaptive frequency domain filtering. International Society of Photogrammetry and Remote Sensing Journal 66:620-636.

Malone, S.L., L. Kobziar, C. Staudhammer, and A. Abd-Elrahman, 2011. Modeling relationships among 217 fires using remote sensing of burn severity in southern Pine forests. Remote Sensing 3:2005-2028.

Abd-Elrahman, A., M. Croxton, R. Pande-Chhetri, G. Toor, S. Smith, and J. Hill, 2011. Chlorophyll-a estimation using in-situ hyperspectral imaging system in aquaculture water bodies. ISPRS Journal of Photogrammetry and Remote Sensing 66: 463-472.

Shaker, I., A. Abd-Elrahman, A. Khedr and M. Atef, 2011. Building extraction from high resolution space images in high density residential areas in the Great Cairo region. Remote Sensing 3:781-791.

Abd-Elrahman A., R. Pande-Chhetri and G. Vallad, 2011. Design and development of a multi-purpose low-cost hyperspectral imaging system. Remote Sensing 3:570-586.

Eltokhy, M., A. Abd-Elrahman, T. Fathy, A. Awad, 2011. Preliminary Evaluation of Baseline Relative Accuracies Using L1 Frequency Observations of Navigation-Grade GARMIN Receivers. Journal of Surveying Engineering 137:26-32

2. Refereed proceedings and scientific bulletin publications

Thornhill, M., A. Abd-Elrahman, and M. Andreu, 2009. Urban forest inventory using open access Web mapping services and photogrammetric solution. Geoinformatics, 2009 17th International Conference, Fairfax VA, 12-14 August 2009, pp. 1-5.

Shaker, I., A. Abd-Elrahman, A. Ragab, and M. Ali, 2009. Integrating the capability of Geographic Information Systems for semi-automating map generalization. Al-Azhar Research Magazine (Cairo, Egypt) 31:51-57.

Abd-Elrahman, A., I. Shaker, A. Abdel-Gawad, and A. Abdelwahab, 2008. Shadow elimination from satellite imagery using wavelet image fusion. 3rd International Engineering Research Division Conference, National Research Center, Cairo, Egypt, 24-26 March 2008, pp. 115-121.

Shaker, I, A. Abd-Elrahman , A. Khedr, A. Abdelwahab, 2006. Detection of clouds and their associated Shadows using image spectral characteristics and spatial constraints. Al-Azhar University Civil Engineering Research Magazine (Cairo, Egypt) 28:150-157.

Shaker, I, A. Abd-Elrahman, A. Khedr, A. Abdelwahab, A., 2005. Toward removing cloud and shadow effects in satellite images using image fusion techniques. Ain Shams Scientific Bulletin (Cairo, Egypt) 40:222-230.

SCIENTIFIC AND PROFESSIONAL SOCIETIES AND COMMITTEES

- IEEE Geoscience and Remote Sensing Society (2016-present)
- American Society for Photogrammetry and Remote Sensing (Professional Development Coordinator of Young Professional Council) (2012-present).
- ASPRS Remote Sensing Application Division.
- International Society of Photogrammetry and Remote Sensing Working Group I/3.
- Florida Surveying and Mapping Society.
- Gamma Sigma Delta Agricultural honor society at the University of Florida
- Center of Multimodal Solutions for Congestion Mitigation.

RESEARCH INTEREST

- Image classification using deep learning networks
- Precession agriculture applications using small Unmanned Aircraft Systems (sUAS)
- Coastal mapping using UAS-Lidar and hyperspectral imagery
- Soil property prediction modeling and mapping use remote sensing and geospatial analysis
- Integrating community-based data collection with Geomatics technologies in natural resources applications
- Object-based image analysis of high resolution imagery
- Modeling vegetation biophysical and biogeochemical parameters using multispectral and hyperspectral imagery
- Submerged aquatic vegetation and water quality studies through radiative transfer models
- Image analysis using Wavelet decomposition techniques
- GIS and remote sensing applications of airborne laser scanners (LIDAR)
- Pattern recognition and Artificial Intelligence Applications in mapping
- Ecosystem service quantification
- Development of hyperspectral image sensing platform and unmanned air vehicle for image acquisition

HONORS

- University of Florida Term Professorship Award (2018)
- American Society of Photogrammetry and Remote Sensing Award for serving as Workshop Program Coordinator (2017).
- Elsevier Excellence Award for the exceptional quality of review efforts (2016)

- American Society of Photogrammetry and Remote Sensing Presidential Citation (2016)
- Awarded North American Colleges and Teachers of Agriculture (NACTA) 2013 Teacher Fellow
- Awarded the Gulf Coast Research and Education Center and the Geomatics Outstanding Faculty of the Year (2012).
- Appointed as a member of the Egyptian National Committee for Mapping and GIS by the Egyptian Minister of Water Resources (2006).

e Gulf Coast Research and Education Center, 2014.