Sanaz Shafian
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Education/Training

2014 PhD Plant and Soil Science, Texas Tech University, Lubbock, TX.
2008 MS Remote sensing, Khaje Nasir Toosi University of Technology, Tehran, Iran.
2005 BS Geomatics Engineering, Khaje Nasir Toosi University of Technology, Tehran, Iran.

Positions and Employment

2019 – Assistant Professor, University of Idaho, Moscow, ID.
2017 – 2019 Post-doctoral Research Associate, University of Idaho, Parma, ID.
2015 – 2017 Post-doctoral Research Associate, Texas A&M University, College Station, TX.
2011 – 2015 Graduate Research Assistant, Texas Tech University, Lubbock, TX.

Program Overview

My current research aims to develop integrated precision agricultural management systems for food security and sustainable development. We use a combination of field measurements, active canopy sensors, UAV and satellite remote sensing and other new technologies to develop innovative solutions to improve agricultural resource management and protect the environment.

Publications

1. Walsh, O. S., **Shafian, S**., Marshall, J. M., Jackson, C., McClintick-Chess, J. R., Blanscet, S. M., ... & Walsh, W. L. (2018). Assessment of UAV Based Vegetation Indices for Nitrogen Concentration Estimation in Spring Wheat. *Advances in Remote Sensing*, *7*(02), 71.
2. **Shafian, S**., Rajan, N., Schnell, R., Bagavathiannan, M., Valasek, J., Shi, Y., & Olsenholler, J. (2018). Unmanned aerial systems-based remote sensing for monitoring sorghum growth and development. *PloS one*, *13*(5), e0196605.
3. Walsh, O. S., **Shafian, S**., McClintick-Chess, J. R., Belmont, K. M., & Blanscet, S. M. (2018). Potential of Silicon Amendment for Improved Wheat Production. *Plants*, *7*(2), 26.
4. Walsh, O. S., **Shafian, S**., & Christiaens, R. J. (2018). Nitrogen Fertilizer Management in Dryland Wheat Cropping Systems. *Plants*, *7*(1), 9.
5. Walsh, O. S., **Shafian, S**., & Christiaens, R. J. (2018). Evaluation of Sensor-Based Nitrogen Rates and Sources in Wheat. *International Journal of Agronomy*, *2018*.
6. Shi, Y., Thomasson, J. A., Murray, S. C., Pugh, N. A., Rooney, W. L., **Shafian, S**., ... & Rana, A. (2016). Unmanned aerial vehicles for high-throughput phenotyping and agronomic research. *PloS one*, *11*(7), e0159781.
7. **Shafian, S.,** & Maas, S. J. (2015). Index of soil moisture using raw Landsat image digital count data in Texas high plains. *Remote Sensing*, *7*(3), 2352-2372.
8. **Shafian, S.,** & Maas, S. J. (2015). Improvement of the Trapezoid method using raw Landsat image digital count data for soil moisture estimation in the Texas (USA) High Plains. *Sensors*, *15*(1), 1925-1944.

Scholarly Presentations and Posters

1. Walsh, O. S., **Shafian, S**., Marshall, J. M., Jackson, C and McClintick-Chess J. 2018. UAV-Based Assessment of Nitrogen Response, Uptake and Use Efficiency of Spring Wheat Cultivars. Abstracts, ASA-CSSA-SSSA International Annual Meetings, Nov 4-7, Baltimore, MD.
2. Walsh, O., **Shafian S**., Blanscet S and McClintick J. 2017. A Comparison of Machine Learning Techniques Applied to UAV Data for Nitrogen Content Estimation. Abstracts, ASA-CSSA-SSSA International Annual Meetings, Oct 22-25, Tampa, FL.
3. **Shafian S**., N Rajan., Schnell R., Cope D., Gates I and Vree A. 2017.Unmanned Aerial Vehichle (UAV) for High Throughput Phenotyping of Sorghum Crop. Abstracts, ASA-CSSA-SSSA International Annual Meetings, Oct 22-25, Tampa, FL.
4. **Shafian S**., N Rajan., Bo F., Neely C and Brown M. 2017. Evaluating Different Methods for Winter Wheat Water Content Estimation from Hyperspectral Remote Sensing Data. Abstracts, ASA-CSSA-SSSA International Annual Meetings, Oct 22-25, Tampa, FL.
5. Walsh, O., **Shafian S**., Blanscet S and McClintick J. 2017 Assessing Growers Adoption of Crop Sensor. Abstracts, Annual Nitrogen Use Efficiency Conference. August 7-9, Baton Rouge, LA.
6. Rajan, N., **Shafian, S**., Cope,D., Bagavathiannan, M., Malambo, L., Popescu, S and Rooney., B. 2017. Field Research Applications of UAS. AUVSI XPONENTIAL Conference. May 8-11, Dallas, TX.
7. Rajan,N., Mikeska, M., **Shafian, S.** Cotton Phenotyping Using Field and Uav-Based Sensors. Southern Branch American Society of Agronomy Annual Meeting, Mobile, AL, 2016.
8. Mikeska, M., Rajan,N., **Shafian, S**., Valasek, J., Cope., D and Olsenholler., J. 2017. Using Unmanned Aerial Systems to Track Growth and Predict Yield in Cotton. Abstracts, Beltwide Cotton Conference, Dallas, TX, 2017.
9. **Shafian, S.,** N. Rajan, R. Schnell, M. Bagavathiannan, J. Valasek, D. Menefee, P. Pokhrel, J. Olsenholler and Y. Shi. 2016. Using a fixed wing UAV remote sensing system for Sorghum Crop Phenotyping. Abstracts, American Geophysics Union (AGU), San Francisco, CA, 2016
10. Miles, M., N. Rajan, **S. Shafian**, J. Valasek, D. Cope, J. Olsenholler, G. Morgan and D. Cope. 2016. Unmanned aerial systems and field phenotyping platforms for assessing the growth and development of cotton. 28th Texas Plant Protection Conference. December 6-7, Bryan, TX.
11. **Shafian, S.,** N. Rajan, J. Valasek, Olsenholler and Y. Shi. 2016. Unmanned Aerial Vehicle (UAV)- Based Remote Sensing for Crop Phenotyping. Abstracts, ASA-CSSA-SSSA International Annual Meetings, November 6-9, Phoenix, AZ
12. **Shafian, S.,** N. Rajan, S.Sharma. 2016. Estimation of Gross Primary Production of Sorghum Using Landsat Imagery and Eddy Covariance Data Abstracts, ASA-CSSA-SSSA International Annual Meetings, November 6-9, Phoenix, AZ
13. Rajan, N., **S. Shafian**, R. Schnell, M. Bagavathiannan, J. Valasek, D. Menefee, P. Pokhrel, J. Olsenholler and Y. Shi. 2016. Using a fixed wing UAV remote sensing system for monitoring sorghum growth and development. Abstracts, ASA-CSSA-SSSA International Annual Meetings, November 6-9, Phoenix, AZ
14. Rajan, N., **S. Shafian**, A. Ibrahim, J. Valasek, Y. Shi, J. Olsenholler and B. Simoneaux. 2016. Wheat Phenotyping using UAV Remote Sensing. Small Grains Workers Meeting, 3-4 August, College Station, TX.

15. **Shafian, S.;** Maas, S.J. Improving of The Trapezoid Method Using Raw Landsat Image Digital Count for Soil Moisture Estimation in the Texas (USA) High Plains. American Geophysics Union (AGU), San Francisco, CA, 2015.
16. **Shafian, S.;** Maas, S.J.; Rajan, R. Improving Spectral Crop Coefficient Approach with Raw Image Digital Count Data to Estimate Crop Water Use. American Geophysics Union (AGU), San Francisco, CA, 2014.
17. **Shafian, S.;** Maas, S.J. A new method to estimate soil moisture content using medium resolution imagery. Third In-situ and Remote Soil Moisture Sensing Technology Conference, Houston, TX, 2014.
18. **Shafian, S.;** Maas, S.J. Modified Trapezoid Method to Estimate Soil Moisture Status with Medium Resolution Imagery (LANDSAT) Products. Southern Branch American Society of Agronomy Annual Meeting, Dallas, TX, 2014.
19. **Shafian, S.;** Maas, S.J. Remote sensing-based soil moisture detection. CIMMYT Meeting, Mexico City, Mexico, 2014(Invited).
20. **Shafian, S.;** Maas, S.J. Perpendicular Moisture Stress INDEX to Estimate SOIL Moisture Status with Medium–Resolution Satellite Imagery. American Society of Agronomy International Annual Meeting, Tampa, FL, 2013.
21. **Shafian, S.;** Valadanzouj, M.J. Assessment Crop Yield Estimation Methods by Using Satellite Images and Ground Observation. Asian Conference on Remote Sensing, Kuala Lumpur, Malaysia, 2007

Teaching and Advising

Goals

My goals of classroom teaching is to tailor my course materials to meet different categories of needs and interests, to help students master the knowledge by case studies, and to encourage students' critical thinking and analytical mind by providing lab sections or other hands-on activities along with lectures. My goal of mentoring graduate students is to tailor the training program to meet program needs, student's education goals, and student's career goals. The student will be well equipped, independent, and competitive upon graduation.

Guest lectures

- Quantitative Agricultural Remote Sensing (PSS 6301). 2014, 2015
- Environmental Instrumentation & Measurements (PSS 5351). 2014, 2015

Awards and Honors

Texas Tech University

1. Outstanding Dissertation Award in the category of Biological and Life Sciences, 2015
3. A.W. Young Grad Student Endowed Support Scholarship, Sep., 2014
4. Harold Mary Dregne Graduate Program Endowed Scholarship, Sep., 2013
5. Texas Tech Pres Doc scholarship, Sep., 2012

Synergistic Activities

- Vice leadership (2019) and leadership (2020) for Precision Agriculture community of the American Society of Agronomy (ASA)

- Vice leadership (2017) and leadership (2018) for Airborne and Satellite Remote Sensing community of the American Society of Agronomy (ASA)
- Symposium Organizer, “The future of remote sensing for agriculture: how this information can be effectively used for decision making”. ASA-CSSA 2018 International Annual Meetings, Nov 4-7, Baltimore, MD
- Workshop Organizer, “Field Scale Agricultural Remote Sensing: UAS, drones, and beyond”. ASA-CSSA 2018 International Annual Meetings, Nov 4-7, Baltimore, MD
- Symposium Organizer, “The future of remote sensing for agriculture: how this information can be effectively used for decision making”. ASA-CSSA-SSSA 2017 International Annual Meetings, Oct. 22-25, Tampa, FL
- Workshop Organizer, “Introduction to agricultural drones: principles and applications”. ASA-CSSA-SSSA 2017 International Annual Meetings, Oct. 22-25, Tampa, FL
- Session Moderator,” *Session*: Agricultural Remote Sensing General Poster”. ASA-CSSA-SSSA 2017 International Annual Meetings, Oct. 22-25, Tampa, FL
- Convener, “*Session*: Unmanned Aerial Systems (UAS) Applications in Agriculture and Natural Resource Management”. American Geophysical Union Fall Meeting, Dec 12-16, San Francisco, CA