

NSF BIOGRAPHICAL SKETCH

NAME: Crawford, Melba

POSITION TITLE & INSTITUTION: Professor of Civil Engineering, Electrical and Computer Engineering (courtesy), and Agronomy, Purdue University

(a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
University of Illinois	Urbana, Illinois	Civil Engineering	BS	1970
University of Illinois	Urbana, Illinois	Civil Engineering	MS	1973
Ohio State University	Columbus, Ohio	Industrial and Systems Engineering	PHD	1981

(b) APPOINTMENTS

2006 - present	Professor of Civil Engineering, Electrical and Computer Engineering (courtesy), and Agronomy, Purdue University, West Lafayette, IN
2009 - 2019	Associate Dean of Engineering for Research, Purdue University, West Lafayette, IN
2006 - 2009	Assistant Dean for Interdisciplinary Research, College of Agriculture and College of Engineering, Purdue University, West Lafayette, IN
1991 - 2005	Professor of Mechanical Engineering, The University of Texas at Austin, Austin, TX
1986 - 1991	Associate Professor of Mechanical Engineering, The University of Texas at Austin, Austin, TX
1980 - 1986	Assistant Professor of Mechanical Engineering, The University of Texas at Austin, Austin, TX
1977 - 1980	Instructor, The University of Texas at Dallas, Richardson, TX

(c) PRODUCTS

Products Most Closely Related to the Proposed Project

1. Masjedi A, Carpenter NR, Crawford MM, Tuinstra M. Multi-Temporal Predictive Modelling of Sorghum Biomass Using UAV-Based Hyperspectral and LiDAR Data. Remote sensing. 2020; 12(21):3587. DOI: 10.3390/rs12213587
2. Karami A, Crawford M, Delp E. Automatic Plant Counting and Location Based on a Few-Shot Learning Technique. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing. 2020; 13:5872-5886. Available from: <https://ieeexplore.ieee.org/document/9204369/> DOI: 10.1109/JSTARS.2020.3025790
3. Ma L, Crawford M, Zhu L, Liu Y. Centroid and Covariance Alignment-Based Domain Adaptation for Unsupervised Classification of Remote Sensing Images. IEEE Transactions on Geoscience and Remote Sensing. 2019; 57(4):2305-2323. Available from: <https://ieeexplore.ieee.org/document/8506613/> DOI: 10.1109/TGRS.2018.2872850
4. Zhang Z, Pasolli E, Crawford M. An Adaptive Multiview Active Learning Approach for Spectral-Spatial Classification of Hyperspectral Images. IEEE Transactions on Geoscience and Remote

Sensing. 2020; 58(4):2557-2570. Available from: <https://ieeexplore.ieee.org/document/8937036/>
DOI: 10.1109/TGRS.2019.2952319

5. Taskin G, Crawford M. An Out-of-Sample Extension to Manifold Learning via Meta-Modeling. IEEE Transactions on Image Processing. 2019; 29(10):5227. DOI: 10.1109/TIP.2019.2915162

Other Significant Products, Whether or Not Related to the Proposed Project

1. Masjedi A, Crawford MM, Carpenter NR, Tuinstra M. Prediction of Sorghum Biomass Using UAV Time Series Data and Recurrent Neural Networks. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops. 2019 June 17; :0. Available from: https://openaccess.thecvf.com/content_CVPRW_2019/html/CVPPP/Masjedi_Prediction_of_Sorghum
2. Pasolli E, Yang HL., Crawford M. Active-metric Learning for Classification of Remotely Sensed Hyperspectral Images. IEEE Transactions on Geoscience and Remote Sensing. 2017; 55(11):6594. DOI: 10.1109/TGRS.2015.2490482
3. Pignotti G, Rathjens H, Cibin R, Chaubey I, Crawford M. Comparative Analysis of Spatial Resolution Effects on HRU and Grid-based SWAT Models. Water. 2017; 9(4):272. DOI: 10.3390/w9040272
4. Yang H, Crawford M. Domain Adaptation with Preservation of Manifold Geometry for Hyperspectral Image Classification. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing. 2016; 9(2):543. DOI: 10.1109/JSTARS.2015.2449738
5. Zhang Z, Pasolli E, Crawford M, Tilton J. An Active Learning Framework for Hyperspectral Image Classification Using Hierarchical Segmentation. IEEE journal of Selected Topics in Applied Earth Observations and Remote Sensing. 2016; 9(2):640. DOI: 10.1109/JSTARS.2015.249388

(d) SYNERGISTIC ACTIVITIES

1. Director, Purdue Laboratory for Applications of Remote Sensing 2006 – present. Current focus on advancing multiscale high resolution sensing for plant science applications, including phenotyping studies and crop management initiatives.
2. Co-Chair, Purdue Engineering Initiative (PEI) in Data in Engineering Applications (IDEA). Focused on developing the education and research strategy for the Purdue College of Engineering, 2019-2022
3. Reviewer and Panelist: NSF and NASA Research Proposals
4. NSF IoT4Ag Engineering Research Center, U of Penn: Member of the Purdue team, Thrust on advances in data analytics/machine learning, including integration of machine learning-based approaches and biophysical crop models.
5. Institute of Electrical and Electronic Engineers, Fellow; Women in Engineering Committee, member, Geoscience and Remote Sensing Society, past President, VP for Conferences; Associate Editor, IEEE Transactions on Geoscience and Remote Sensing.