

## CURRICULUM VITAE

### Dr. PRASHANTH REDDY MARPU

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#### Objective:

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To be part of a quality work environment.

#### Experience:

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- 06/2013-pres** Assistant Professor at Masdar Institute of Science and Technology, UAE.
- 11/2011- 06/2013:** Researcher at Masdar Institute of Science and Technology, UAE, working on *Earth-observation data processing*.
- 06/2010- 11/2011:** Researcher at Dept. of Electrical and Computer Engineering, University of Iceland, Iceland working on *Remote sensing image processing*.
- 05/2009-06/2010:** Experienced Researcher position in EU funded Hyper-I-Net project as a **Marie Curie Fellow** with the Remote sensing group at the University of Pavia, Italy working on *Hyperspectral image processing*.
- 01/2007-04/2009:** Researcher in EU funded LIMES (Land Sea Integrated Monitoring for European Security) project, working on *Object-based image analysis for wide area monitoring* working at TU Freiberg, Germany.
- 03/2006-02/2008:** Researcher in EU funded GMOSS (Global Monitoring for Security and Stability) network, working on *Object-based approach for change detection using remote sensing data* working at TU Freiberg, Germany.
- 02/2006-11/2006:** Image analyst at Institute for Geology, TU Freiberg, Germany working on *Automatic counting of fission tracks in microscopic images*.
- 01/2006-12/2006:** Research Assistant at Institute for Geology, TU Freiberg, Germany working on *Structural analysis of geological rifts using remote sensing data*.

#### Education:

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- 04/2009:** Freiberg University of Mining and Technology, Freiberg, Germany.  
Received a “Doktor Ingenieur” Degree with “magna cum laude”.
- 03/2006:** Technical University of Denmark, Kongens Lyngby, Denmark.  
Received a Master of Science Degree in Wireless Engineering
- 06/2003:** Jawaharlal Nehru Technological University, Hyderabad, India.  
Received a Bachelor of Technology Degree in Electronics and Communications Engineering with distinction.

#### Fields of interest:

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Image processing, remote sensing, multi/hyperspectral data processing, change detection, mathematical morphology, geosciences, environmental data analysis, hydro-climatology, CubeSats.

**Book chapters and Journals:**

- 1) Gloaguen R., Marpu P.R., Niemeyer I., "Automatic Extraction of Faults and Fractal Analysis from Remote Sensing Data." *Nonlin. Processes Geophys.*, 14, 131–138, 2007.
- 2) Marpu, P.R., Nussbaum S., Niemeyer I. & R. Gloaguen: "A Procedure for automatic object-based classification." In: Blaschke, T., Lang, S. & G. Hay (ed.): *Object-Based Image Analysis Spatial Concepts for Knowledge-Driven Remote Sensing Applications*. Series: Lecture Notes in Geoinformation and Cartography. Springer, Berlin (2008).
- 3) Niemeyer, I., Marpu, PR & Nussbaum, S.: Change detection using object features. In: Blaschke, T., Lang, S. & G. Hay (ed.), *Object-Based Image Analysis Spatial Concepts for Knowledge-Driven Remote Sensing Applications*. Series: Lecture Notes in Geoinf. and Cartography. Springer, Berlin (2008).
- 4) A Wijaya, PR Marpu, & R Gloaguen. "Geostatistics texture classification of tropical rainforests in Indonesia." In Stein and Bijker (3d.): *Quality in spatial data mining*. CRC Book Series (2008).
- 5) Gonçálves J.G.M., Gutjahr, K.H., Listner, C., Loreaux, P., Marpu, P.R., Niemeyer, I., Patrono, A., Ussorio, A. & E. Wolfart. "Integrated Analysis of Satellite Imagery for Treaty Monitoring - The LIMES Experience." *ESARDA Bulletin* 43 (2010).
- 6) P.R. Marpu, M. Neubert, H. Herold and I. Niemeyer. "Enhanced evaluation of image segmentation results." *Journal of Spatial Science*, Volume 55 Issue 1, 55, 2010.
- 7) Wijaya, Arief, Reddy Marpu, Prashanth and Gloaguen, Richard. "Discrimination of peatlands in tropical swamp forests using dual-polarimetric SAR and Landsat ETM data." *International Journal of Image and Data Fusion*, 1: 3, 257-270, 2010.
- 8) K. Bakos, P. R. Marpu and P. Gamba. "Decision fusion of multiple classifiers for hyperspectral data classification." In S. Prasad, L. M. Bruce and J. Chanussot (Eds.) *Optical Remote Sensing. Advances in Signal Processing and Exploitation Techniques*. Augmented Vision and Reality Series, Vol. 3, 1st Edition (2011).
- 9) P. R. Marpu, P. Gamba and M. J. Canty, "Improving change detection results of IR-MAD by eliminating strong changes." *IEEE Geoscience and Remote Sensing Letters*, 2011.
- 10) Gao, Y., Marpu, P., Niemeyer, I., Runfola, D., Giner, N. M., Hamill, T., "Object-based classification with features extracted by a semi-automatic feature extraction algorithm - SEaTH." *Geocarto International*, 2011.
- 11) G. Licciardi, P. R. Marpu, J. A. Benediktsson and J. Chanussot, "Linear versus non-linear PCA for the classification of hyperspectral data based on the extended morphological profiles." *IEEE Geoscience and Remote Sensing Letters*, 2012.
- 12) S. Bernabe, A. Plaza, P.R. Marpu and J. A. Benediktsson, "A new parallel tool for classification of remotely sensed imagery." *Computers and Geosciences*, 2012.
- 13) Marpu P. R., Pederagnana M., Dalla Mura M., Peeters S., Benediktsson J.A., Bruzzone L., "Classification of hyperspectral data using extended attribute profiles based on supervised and unsupervised feature extraction techniques." *Intl. J. of Image and Data Fusion*, 2012.
- 14) P. R. Marpu, M. Pederagnana, M Dalla Mura, J. A. Benediktsson and L. Bruzzone, "Automatic generation of standard deviation attribute profiles for spectral-spatial classification of remote sensing data." *IEEE Geosc. and Remote Sensing Letters*, 2012.
- 15) Pederagnana M., Marpu P. R., Dalla Mura M., Benediktsson J.A., Bruzzone L., "Classification of Remote Sensing Optical and LiDAR Data Using Extended Attribute Profiles." *IEEE Journal of Selected Topics in Signal Processing*, 2012.
- 16) Pederagnana M., Marpu P. R., Dalla Mura M., Benediktsson J.A., Bruzzone L., "A Novel Technique for Optimal Feature Selection in Attribute Profiles Based on Genetic Algorithms." *IEEE Transactions on Geoscience and Remote Sensing*, 2013
- 17) Li J., Marpu P. R., Plaza A. J., Benediktsson J. A., "Generalized composite kernel framework for hyperspectral image classification." *IEEE Trans. on Geoscience and Remote Sensing*, 2013.

- 18) Dopido I., Li J., Marpu P. R., Plaza A. J., Bioucas Dias J. M., Benediktsson J. A., "Semi-Supervised Self Learning for Hyperspectral Image Classification." *IEEE Transactions on Geoscience and Remote Sensing*, 2013.
- 19) M. Lazzarini, P.R. Marpu, H. Ghedira, "Temperature-land cover interactions: the inversion of Urban Heat Island phenomenon in desert city areas." *Remote Sensing of Environment*, 2013.
- 20) Eissa, Y., Marpu, P. R., Gherboudj, I., Ghedira, H., Ouarda, T. B.M.J., Chiesa, M., "Artificial neural network based model for retrieval of the direct normal, diffuse horizontal and global horizontal irradiances using SEVIRI images." *Solar Energy*, 2013.
- 21) S. Bernabe, P.R. Marpu A. Plaza, M. Dalla Mura and J. A. Benediktsson, "Spectral-spatial classification of multispectral images using kernel feature space representation." *IEEE Geoscience and Remote Sensing Letters*, 2013.
- 22) M. Saini, B. Christian, N. Joshi, D. Vyas, P. R. Marpu and N.S.R. Krishnayya, "Hyperspectral Data Dimensionality Reduction and the Impact of Multi-seasonal Hyperion EO-1 Imagery on Classification Accuracies of Tropical Forest Species." *Phot. Engg. & Remote Sensing*, 2014.
- 23) Savvina Loutatidou, Bushra Chalermthai, Prashanth R. Marpu, Hassan A. Arafat, "Capital cost estimation of RO plants: GCC countries versus southern Europe." *Desalination*, Volume 347, 15 August 2014, Pages 103-111, ISSN 0011-9164, <http://dx.doi.org/10.1016/j.desal.2014.05.033>.
- 24) TBMJ Ouarda, C Charron, KN Kumar, PR Marpu, H Ghedira, A Molini and I Khayal. "Evolution of the rainfall regime in the United Arab Emirates." *Journal of Hydrology* 514, 258-270. 2014.
- 25) M. Lazzarini, P. R. Marpu, Y. Eissa, H. Ghedira. "Toward a Near Real-Time Product of Air Temperature Maps from Satellite Data and In Situ Measurements in Arid Environments." *IEEE Journal of Selected Topics in Applied Earth Obs. and Remote Sensing*, 2014.
- 26) M. Alobaidi, Prashanth R. Marpu, Taha BMJ Ouarda, Hosni Ghedira. "Mapping of the solar irradiance in the UAE using advanced artificial neural network-ensemble." *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 2014.
- 27) TBMJ Ouarda, C Charron, J-Y Shin, PR Marpu, AH Al-Mandoos, MH Al-Tamimi, H Ghedira, TN Al Hosary, "Probability distributions of wind speed in the UAE." *Energy Conversion and Management*, 2015.
- 28) G. Basha, P.R. Marpu and TBMJ Ouarda, "Long-term prediction of Temperature, Precipitation, and Soil moisture using non-stationary oscillation processes over the UAE region." *International Journal of Climatology*, 2015.
- 29) K. Jung, P.R. Marpu and TBMJ Ouarda, "Improved classification of drainage networks using junction angles and secondary tributary lengths." *Geomorphology*, 2015.
- 30) G Basha, PR Marpu, and TBMJ Ouarda, "Tropospheric temperature climatology and trends observed over the Middle East." *Journal of Atmospheric and Solar-Terrestrial Physics*, 2015.
- 31) Mohammad H Alobaidi, Prashanth R Marpu, Taha BMJ Ouarda, and Fateh Chebana, "Regional frequency analysis at ungauged sites using a two-stage resampling generalized ensemble framework." *Advances in Water Resources*, 2015.
- 32) Ghouse Basha, DV Phanikumar, K Niranjana Kumar, TBMJ Ouarda, and PR Marpu, "Investigation of aerosol optical, physical, and radiative characteristics of a severe dust storm observed over UAE." *Remote Sensing of Environment*, 2015.
- 33) M. Lazzarini, A. Molini, P. R. Marpu, H. Ghedira and TBMJ Ouarda, "Urban climate modifications in hot-desert cities: The role of land-cover, local climate and seasonality." *Geophysical Research Letters*, 2015
- 34) S Sanchez, P Marpu, A Plaza, and A Paz, "Parallel Implementation of Polarimetric Synthetic Aperture Radar Data Processing for Unsupervised Classification Using the Complex Wishart Classifier." *IEEE Journal of Selected Topics in Applied Earth Obs. and Remote Sensing*, 2015.
- 35) N. Falco, P.R. Marpu, and J.A. Benediktsson, "A Toolbox for Unsupervised Change Detection Analysis" *International Journal of Remote Sensing* 37(7), 1505-1526, 2016.
- 36) TBMJ Ouarda, C Charron, PR Marpu, F Chebana, "The Generalized Additive Model for the

Assessment of the Direct, Diffuse, and Global Solar Irradiances Using SEVIRI Images, With Application to the UAE.” *IEEE Journal of Selected Topics in Applied Earth Obs. and Remote Sensing*, 2016.

- 37) A Giwa, S Daer, I Ahmed, PR Marpu, and SW Hasan, “Experimental Investigation and Artificial Neural Networks Modeling of Electrically-Enhanced Membrane Bioreactor in Arid Regions.” *Journal of Water Process Engineering*, 2016.

#### **Fellowships and Grants:**

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- 1) Marie Curie International Incoming Fellowship (05/2009- 01/2011).
- 2) Co-PI of Project grant 110043021 “Change detection methods in optical remote sensing” funded by RANNIS (Icelandic Research Fund). (01/2011-12/2013).
- 3) University of Iceland research fund- Postdoctoral research grant 2011.
- 4) PI of Project grant on “Non-invasive Sensing using Hyperspectral imaging.” (2013-2015).
- 5) PI of seed-funded project on “Novel sensor networks for urban microclimate monitoring” (2014).
- 6) PI of Masdar Institute- MIT Flagship Project on “Urban Microclimate Modeling.” (2014 – 2017).
- 7) Co-PI of Masdar Institute- MIT Innovation Program grant on “Low cost algal bloom sensing device.” (2014-2015).
- 8) PI of the Masdar Institute PhD Student Support Grant on “Land deformation monitoring using SAR interferometry.” (2015 – 2017)
- 9) PI of the Masdar Future Energy Company grant on “Spectral and temporal characteristics of dust deposition on solar panels.” (2016-2017)

#### **Other:**

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- 1) Reviewer for IJRS (2007-), Math. Geosci. (2007-09), IGARSS proceedings (2008-), TGRS (2009- ), JAST (2009), IEEE GRSL (2010-), IJDF (2010-), IEEE JSTARS (2011-), Comp. and Geosciences (2012-), Proceedings of IEEE (2012-), JDE (2012-), Remote Sensing ( 2012-), etc.
- 2) President and founder member of the IAMG Student Chapter at TU Freiberg (2006- 08).
- 3) Chair of Organization of MATGEOS 2008, First workshop on Mathematical Geosciences, 2008.
- 4) Organization of the third Hyper-I-Net Summer School on Hyperspectral imaging. Sep 8-11, 2009.
- 5) Awarded the **Best Reviewer** recognition for 2012 by IEEE Geosc.and Remote Sensing Letters.
- 6) Received the **Best Paper Award** from Intl. Journal of Image and Data Fusion for 2012-2013.
- 7) Elevated to IEEE senior member grade in 2014.
- 8) Founding member and chair of IEEE Geoscience and Remote Sensing Society UAE chapter.
- 9) Member of Organizing Committee of Middle East Geospatial Forum, 2015.
- 10) Chair of Organization of Joint Urban Remote Sensing Event, 2017.

#### **Student Supervision:**

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*Current:* 6 PhD students (3 as main supervisor and 3 as co-supervisor), 5 MSc students (5 as main supervisor and 0 as co-supervisor),

*Past:* 1 PhD student (as co-supervisor) and 8 MSc students (1 as main advisor and 7 as co-supervisor)

**Personal details:**

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***Date of Birth:*** 12<sup>th</sup> March, 1982

***Nationality:*** Indian

***Languages:*** I can speak fluently and write English, Hindi and Telugu.

***Memberships:*** IEEE GRSS

I certify that the provided information is right to the best of my knowledge and I am responsible for all the information.

Sincerely,

Dr. Prashanth Reddy Marpu