



# Pedram Ghamisi

*Curriculum Vitae of Pedram Ghamisi*

## PERSONAL DETAILS

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<i>Birth</i>	April 22, 1985
<i>Address</i>	Munich, Germany
<i>Phone</i>	(+49) 1749775388
<i>Email</i>	p.ghamisi@gmail.com
<i>Website</i>	<a href="http://pedram-ghamisi.com/">http://pedram-ghamisi.com/</a>

## SHORT DESCRIPTION

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Pedram Ghamisi graduated with a B.E. in civil (survey) engineering from the Tehran South Campus of Azad University. He obtained an M.E. degree with first class honors in remote sensing at K.N.Toosi University of Technology in 2012. In 2013/2014, he spent seven months at the school of Geography, Planning and Environmental Management, the University of Queensland, Australia. He received a Ph.D. in electrical and computer engineering at the University of Iceland, Reykjavik in 2015 and subsequently worked as a postdoctoral research fellow at the University of Iceland. In 2015, Dr. Ghamisi won the prestigious Alexander von Humboldt Fellowship and started his work as a postdoctoral research fellow at Technical University of Munich (TUM) and Heidelberg University, Germany from October 2015. He has also been working as a researcher at German Aerospace Center (DLR), Remote Sensing Technology Institute (IMF), Germany since October 2015. His research interests are in remote sensing and image analysis, with a special focus on spectral and spatial techniques for hyperspectral image classification and the integration of LiDAR and hyperspectral data for land cover assessment. His research interests are in Image processing, machine learning, deep learning, big data processing, remote sensing and image analysis with a special focus on spectral and spatial techniques for hyperspectral image classification and multisensor data fusion. He serves as a reviewer for a number of journals including (but not limited to) *IEEE Transactions on Image Processing*, *IEEE Transactions on Geoscience and Remote Sensing*, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, *IEEE Geoscience and Remote Sensing Letters*, *Pattern Recognition Letters*, *Canadian Journal of Remote Sensing*, *Remote Sensing*, *Neural Computing and Applications*, *Signal, Image and Video Processing*, and *International Journal of Remote Sensing*.

In the academic year 2010-2011, he received the Best Researcher Award for M.Sc. students in K. N. Toosi University of Technology. At the 2013 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Melbourne, July 2013, Dr. Ghamisi was awarded the IEEE Mikio Takagi Prize for winning the Student Paper Competition, competing with almost 70 submissions. In 2016, he was selected as *talented international researcher* by Iran's National Elites Foundation. In 2017, he won the Data Fusion Contest 2017 organized by the Image Analysis and Data Fusion Technical Committee (IADF) of the Geoscience and Remote Sensing Society (IEEE-GRSS). His model was the most accurate among more than 800 submissions.

## **EDUCATION AND WORK**

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**Quality Assessor of papers published on journals indexed in either Scopus or ISI WoS for Italian Research assessment**

August 2016-  
now

**Researcher**

October 2015- Oc-  
tober 2017

*German Aerospace Center (DLR), Remote Sensing Technology Institute (IMF), Germany*

**Hyperspectral Image Analysis Using Deep Learning:** Currently, DLR is developing the hyperspectral instrument DESIS to be operated on the MUSES platform onboard the ISS from 2016; in 2018 the German Environmental Mapping and Analysis Program satellite, EnMAP, will be launched. Triggered by these exciting future observation capabilities, the hosting organization, DLR's Remote Sensing Technology Institute (DLR-IMF), has put a strategic focus on methodological research for hyperspectral data analysis.

**Postdoctoral Research Fellow**

October 2015- Oc-  
tober 2017

*Signal Processing in Earth Observation, Technical University of Munich (TUM) and GIScience and 3-D spatial data processing at the Institute of Geography, Heidelberg University*

**Multi-Sensor Data Fusion for Land Cover Mapping:** The increased availability of data from different satellite and airborne sensors for a particular scene makes it desirable to jointly use data from multiple data sources for improved information extraction, hazard monitoring, and land cover/land use mapping. In this context, hyperspectral sensors provide detailed spectral information, which can be used to discriminate different classes of interest, but they do not provide structural and elevation information. On the other hand, LiDAR data can extract useful information related to the size, structure, and elevation of different objects, but cannot model the spectral characteristics of different materials. The main objective of this project goes to the proposition of efficient approaches for the integration of LiDAR and hyperspectral data.

**Postdoctoral Research Fellow**

May 2015-  
August 2015

*University of Iceland, 107 Reykjavik, Iceland*

**PhD in Electrical and Computer Eng.**

Sep. 2012-  
May 2015

*University of Iceland, 107 Reykjavik, Iceland*

Thesis Subject: Spectral and Spatial Classification of Hyperspectral Data

**M. Sc. in Remote Sensing Engineering (Civil Engineering)**

2009-2012

*K.N.Toosi University of Technology, Tehran, Iran*

Thesis Subject: An Efficient Algorithm for Lossless Compression of Remote Sensing Images.

**BSc. in Survey Engineering (Civil Engineering)**

2003-2008

*Tehran South Campus of Azad University, Tehran*

## AWARDS

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1. The recipient of the **IEEE Mikio Takagi Prize** which was awarded for the first place in the Student Paper Competition at the 2013 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Melbourne, July 2013.
2. **Best Researcher Award** for students in K. N. Toosi University of Technology in academic year: 2010-2011
3. **First Class Honours** in MSc (equivalent to GPA of 17 out of 20 or 3.4 out of 4)
4. Selected as a **talented international researcher** by Iran's National Elites Foundation.
5. The **Winner of the Data Fusion Contest 2017** organized by the Image Analysis and Data Fusion Technical Committee among more than 800 submissions.

## RESEARCH GRANT AND SCHOLARSHIP

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- 1) **The Icelandic Centre for Research (Rannis)**

Sep. 2012 -  
Jun. 2015

*9,540,000 ISK (85,000 USD)*

“Spectral-Spatial Classification of Hyperspectral Images”

- 2) **International Postgraduate Research Scholarship (IPRS)**

Aug. 2013-  
Mar. 2014

*16,000 USD*

Australian Research Funding

“Fusion of LiDAR and Hyperspectral Data for Land-Cover Mapping”

- 3) **The Icelandic Centre for Research (Rannis)**

Mar. 2015  
Mar. 2018

*38,880.000 ISK (286,345.56 USD)*

“Environmental Mapping and Monitoring of Iceland by Remote Sensing (EMMIRS)”

- 4) **Alexander von Humboldt Fellowship**

Oct. 2015  
Oct. 2017

“Multisensor Data Fusion for Land-Cover Mapping”

- 5) **Natural Science Foundation of China (Grant 61771171)**

2017 2020

## **PUBLICATIONS**

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### **0.1 Book**

1. (Book) **P. Ghamisi**, B. Kiasat, A. Mohammadzadeh, F. Sepehrband. Fundamental of object based image analysis in remote sensing and photogrammetry, ISBN 976-600-90098-8-6. Written in Persian language. <http://www.ketab.ir/bookview.aspx?bookid=1702470>
2. (Book) J. A. Benediktsson and **P. Ghamisi**, Spectral-Spatial Classification of Hyperspectral Remote Sensing Images, Artech House Publishers, INC, Boston, USA.
3. (Book) M. S. Couceiro and **P. Ghamisi**, Fractional Order Darwinian Particle Swarm Optimization: Applications and Evaluation of an Evolutionary Algorithm, Springer, London, UK.

### **0.2 PhD Thesis**

P. Ghamisi, Spectral and Spatial Classification of Hyperspectral Data, Ph.D. thesis, University of Iceland, 2015. <http://skemman.is/en/item/view/1946/20837>

### **0.3 Journal papers**

1. **P. Ghamisi**, A. Mohammadzadeh, M. R. Sahebi, F. Sepehrband and J. Choupan, "A Novel Real Time Algorithm for Remote Sensing Lossless Data Compression based on Enhanced DPCM", *International Journal of Computer Applications*, 27(1):47-53, August 2011. Published by Foundation of Computer Science, New York, USA.
2. **P. Ghamisi**, "A Novel Method for Segmentation of Remote Sensing Images based on Hybrid GA-PSO", *International Journal of Computer Applications*, 29(2):7-14, September 2011. Published by Foundation of Computer Science, New York, USA.
3. F. Sepehrband, **P. Ghamisi**, A. Mohammadzadeh, M. R. Sahebi, J. Choupan, "Efficient Adaptive Lossless Compression of Hyperspectral Data Using Enhanced DPCM", *International Journal of Computer Applications* 35(4):6-11, December 2011. Published by Foundation of Computer Science, New York, USA.
4. **P. Ghamisi**, F. Sepehrband, L. Kumar, M. S. Couceiro, Fernando M. L. Martins, A New Method for Compression of Remote Sensing Images Based on Enhanced Differential Pulse Code Modulation Transformation, *Science Asia*, 39 (5), 449-455.
5. **P. Ghamisi**, M. S. Couceiro, J. A. Benediktsson and N. M. F. Ferreira, "An Efficient Method for Segmentation of Images Based on Fractional Calculus and Natural Selection," *Expert Systems With Applications*, vol. 39, no. 16, pp. 12407-12417, Nov. 2012.
6. **P. Ghamisi**, M. S. Couceiro, F. M. L. Martins and J. A. Benediktsson, "Multi-level Image Segmentation Based on Fractional-Order Darwinian Particle Swarm Optimization," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 52, no. 5, pp. 2382-2394, May 2014.

7. **P. Ghamisi**, M. S. Couceiro, M. Fauvel and J. A. Benediktsson, "Integration of Segmentation Techniques for Classification of Hyperspectral Images," *IEEE Geoscience and Remote Sensing Letters*, vol. 11, no. 1, pp. 342-346, Jan. 2014.
8. **P. Ghamisi**, J. A. Benediktsson and M. O. Ulfarsson, "Spectral-Spatial Classification of Hyperspectral Images Based on Hidden Markov Random Fields," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 52, no. 5, pp. 2565-2574, May 2014.
9. **P. Ghamisi**, J. A. Benediktsson and J. R. Sveinsson, "Automatic Spectral-Spatial Classification Framework Based on Attribute Profiles and Supervised Feature Extraction," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 52, no. 9, pp. 5771-5782, Dec. 2014.
10. **P. Ghamisi**, J. A. Benediktsson, G. Cavallaro and A. Plaza, "Automatic Framework for Spectral-Spatial Classification Based on Supervised Feature Extraction and Morphological Attribute Profiles," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 7, no. 6, pp. 2147 - 2160, Jun. 2014.
11. **P. Ghamisi** and J. A. Benediktsson, "Feature Selection Based on Hybridization of Genetic Algorithm and Particle Swarm Optimization," *IEEE Geoscience and Remote Sensing Letter*, vol. 12, no. 2, pp. 309-313, Jul. 2015.
12. **P. Ghamisi**, M. Dalla Mura and J. A. Benediktsson, "A Survey on Spectral-Spatial Classification Techniques Based on Attribute Profiles," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 53, no. 5, pp. 2335-2353, May 2015.
13. **P. Ghamisi**, M. S. Couceiro and J. A. Benediktsson, "A Novel Feature Selection Approach Based on FODPSO and SVM," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 53, no. 5, pp. 2935-2947, May 2015.
14. S. Kargozar Nahavandi, **P. Ghamisi**, L. Kumar and M. S. Couceiro, "A Novel Adaptive Compression Technique for Dealing with Corrupt Bands and High Levels of Band Correlations in Hyperspectral Images based on Binary Hybrid GA-PSO for Big Data Compression", *International Journal of Computer Applications*, vol. 109, no. 8, pp. 18-25, January 2015.
15. **P. Ghamisi**, A. ALi, M. S. Couceiro and J. A. Benediktsson, "A Novel Evolutionary Swarm Fuzzy Clustering Approach for Hyperspectral Imagery," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 8, no. 6, pp. 2447 - 2456, 2015.
16. **P. Ghamisi**, J. A. Benediktsson and S. Phinn, P. Ghamisi, J. A. Benediktsson, and S. Phinn, "Landcover classification using both hyperspectral and lidar data," *International Journal of Image and Data Fusion*, vol. 6, no. 3, pp. 189215, 2015.
17. **P. Ghamisi**, R. Souza, J. A. Benediktsson, X. X. Zhu, L. Rittner, and R. Lotufo, "Extinction Profiles for the Classification of Remote Sensing Data", *IEEE Transactions on Geoscience and Remote Sensing*, vol.54, no.10, pp.5631 - 5645, 2016 [**The most popular paper published by IEEE TGRS in July, August, and September 2016**].
18. Y. Chen, H. Jiang, C. Li, X. Jia, and **P. Ghamisi**, Deep Feature Extraction and Classification of Hyperspectral Images Based on Convolutional Neural Networks,

*IEEE Transactions on Geoscience and Remote Sensing*, vol. 54, no. 10, pp. 6232-6251, Oct. 2016 [**The most popular paper published by IEEE TGRS in October, November, and December 2016**].

19. **P. Ghamisi**, Y. Chen, and X. X. Zhu, “A Self-Improving Convolution Neural Network for the Classification of Hyperspectral Data”, *IEEE Geoscience and Remote Sensing Letters*, vol. 13, no. 10, pp. 1537 - 1541, Oct. 2016 [**The most popular paper published by IEEE GRSL in October and November 2016**].
20. **P. Ghamisi**, R. Souza, J. A. Benediktsson, L. Rittner, R. Lotufo, X. X. Zhu, “Hyperspectral Data Classification Using Extended Extinction Profile”, *IEEE Geoscience and Remote Sensing Letters*, vol. 13, no. 11, pp. 1641-1645, Nov. 2016.
21. Y. Chen, S. Ma, X. Chen, and **P. Ghamisi**, “Hyperspectral Data Clustering Based on Density Analysis Ensemble”, *Remote Sensing Letters*, vol. 8, no. 2, pp. 194-203, 2017.
22. **P. Ghamisi**, J. Plaza, Y. Chen, J. Li, and A. Plaza, “Advanced Spectral Classifiers for Hyperspectral Images: A Review”, *IEEE Geoscience and Remote Sensing Magazine*, vol. 5, no. 1, pp. 8-32, 2017.
23. **P. Ghamisi**, G. Cavallaro, D. Wu, Jon Atli Benediktsson and A. Plaza, “Fusion of LiDAR and Hyperspectral Data for the Classification of Urban Areas: A Case Study”, *International Journal of Image and Data Fusion*, *accepted*.
24. **P. Ghamisi**, B. Höfle, X. X. Zhu, “Hyperspectral and LiDAR Data Fusion Using Extinction Profiles and Deep Convolutional Neural Network”, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 10, no. 6, pp. 3011-3024, 2017.
25. **P. Ghamisi** and B. Höfle, “LiDAR Data Classification Using Extinction Profiles and a Composite Kernel Support Vector Machine”, *IEEE Geoscience and Remote Sensing Letters*, vol. 14, no. 5, pp. 659-663, 2017.
26. L. Mou, **P. Ghamisi**, X. X. Zhu, “Deep Recurrent Neural Networks for Hyperspectral Image Classification”, *IEEE Transactions on Geoscience and Remote Sensing*, vol. 55, no. 7, pp. 3639-3655, 2017 [**The most popular paper published by IEEE TGRS in July and August 2017**].
27. B. Rasti, **P. Ghamisi**, and R. Gloaguan, “Hyperspectral and LiDAR Fusion Using Extinction Profiles and Total Variation Component Analysis”, *IEEE Transactions on Geoscience and Remote Sensing*, vol. 55, no. 7, pp. 3997-4007, 2017.
28. R. pullanagari, G. Kereszturi, I. Yule, **P. Ghamisi**, “Assessing the performance of multiple spectral-spatial features of a hyperspectral image for classification of urban land cover classes using support vector machines and artificial neural network”, *Journal of Applied Remote Sensing*, vol. 11, no. 2, pp. 026009, 2017.
29. Y. Chen, C. Li, **P. Ghamisi**, X. Jia, Y. Gu, “Deep Fusion of Remote Sensing Data for Accurate Classification,” *IEEE Geoscience and Remote Sensing Letters*, vol. 14, no. 8, pp. 1253-1257, 2017.
30. M. Zhang, **P. Ghamisi**, and W. Li, “Classification of hyperspectral and LIDAR data using extinction profiles with feature fusion”, *Remote Sensing Letters*, , vol. 8, no. 10, pp. 957-966, 2017.

31. B. Rasti, **P. Ghamisi**, J. Plaza, and A. Plaza, "Fusion of Hyperspectral and LiDAR Data Using Sparse and Low-Rank Component Analysis", *IEEE Transactions on Geoscience and Remote Sensing*, DOI: 10.1109/TGRS.2017.2726901, *in press*.
32. L. Mou, P. Ghamisi, X. X. Zhu, "Unsupervised Spectral-Spatial Feature Learning via Deep Residual Conv-Deconv Network for Hyperspectral Image Classification", *IEEE Transactions on Geoscience and Remote Sensing*, *accepted*.
33. J. Xia, P. Ghamisi, N. Yokoya, and A. Iwasaki, "Random Forest Ensembles and Extended Multi-Extinction Profiles for Hyperspectral Image Classification", *IEEE Transactions on Geoscience and Remote Sensing*, *accepted*.
34. P. Ghamisi, N. Yokoya, J. Li, W. Liao, J. Plaza, B. Rasti, and A. Plaza, "Advances in Hyperspectral Image and Signal Processing", *IEEE Geoscience and Remote Sensing Magazine*, *accepted*.
35. Y. Chen, L. Zhu, P. Ghamisi, X. Jia, and L. Tang "Hyperspectral Images Classification with Gabor Filtering and Convolutional Neural Network", *IEEE Geoscience and Remote Sensing Letters*, *accepted*.
36. B. Rasti, M. O. Ulfarsson, and P. Ghamisi, "Automatic Hyperspectral Image Restoration Using Sparse and Low-Rank Modeling", *IEEE Geoscience and Remote Sensing Letters*, *accepted*.

#### 0.4 Conference papers

1. **P. Ghamisi**, F. Sepelband, A. Mohammadzadeh, M. Mortazavi, J. Choupan, "Fast and Efficient Algorithm for Real Time Lossless Compression of LiDAR rasterized data Based on Improving Energy Compaction", *The 6th IEEE GRSS and ISPRS Joint Workshop on Remote Sensing and Data Fusion over Urban Areas, JURSE'11*, Munich, Germany, April 2011.
2. F. Sepelband, **P. Ghamisi**, M. Mortazavi and J. Choupan, "Simple and efficient remote sensing image transformation for lossless compression", *Proc. SPIE 8285, International Conference on Graphic and Image Processing (ICGIP 2011)*, 82854A (September 30, 2011); doi:10.1117/12.913262.
3. F. Sepelband, **P. Ghamisi**, M. Mortazavi, J. Choupan, "Simple and Efficient Remote Sensing Image Transformation for Lossless Compression". *International Conference on Signal and Information Processing (ICSIP'10)*, Changsha, China, December, 2010.
4. **P. Ghamisi**, F. Sepelband, J. Choupan, M. Mortazavi, "Binary Hybrid GA-PSO based algorithm for compression of hyperspectral data," *Signal Processing and Communication Systems (ICSPCS)*, 2011 5th International Conference on , vol., no., pp.1-8, 12-14 Dec. 2011; doi: 10.1109/ICSPCS.2011.6140839
5. **P. Ghamisi** and L. Kumar, "A novel adaptive compression method for hyperspectral images by using EDT and particle swarm optimization", *Proc. SPIE 8299, Digital Photography VIII*, 82990M (January 24, 2012); doi:10.1117/12.904727
6. **P. Ghamisi**, M. S. Couceiro, N. M. F. Ferreira, L. Kumar, "Use of Darwinian Particle Swarm Optimization technique for the segmentation of Remote Sensing images", *IGARSS 2012*, vol., no., pp.4295-4298, 22-27 July 2012, doi: 10.1109/IGARSS.2012.6351718

7. **P. Ghamisi**, M. S. Couceiro and J. A. Benediktsson, "Extending the Fractional Order Darwinian Particle Swarm Optimization to Segmentation of Hyperspectral Images," in *Proc. SPIE, Image and Signal Processing for Remote Sensing XVIII*, 2012, pp. 85370F-85370F-11.
8. **P. Ghamisi**, M. S. Couceiro, M. Fauvel, J. A. Benediktsson, "Spectral-Spatial Classification Based on Integrated Segmentation," in *Proc. IEEE IGARSS, 2012*, pp. 1458-1461, 2013.
9. **P. Ghamisi**, Jon Atli Benediktsson, Magnus O. Ulfarsson, "The Spectral Spatial Classification of Hyperspectral Images Based on Hidden Markov Random Field and its Expectation-Maximization," in *Proc. IEEE IGARSS, 2013*, pp. 1107-1110, **(The winner of the IEEE Mikio Takagi student prize 2013 for winning the Student Paper Competition at the conference between almost 70 people)**.
10. **P. Ghamisi**, M. S. Couceiro, and J. A. Benediktsson, "Classification of Hyperspectral Images with Binary Fractional Order Darwinian PSO and Random Forests," in *Proc. SPIE, Image and Signal Processing for Remote Sensing XIX*, 2013, pp. 88920S88920S-8.
11. **P. Ghamisi**, M. S. Couceiro and J. A. Benediktsson, "FODSPO Based Feature Selection for Hyperspectral Remote Sensing Data," *WHISPERS 2014*, Lausanne, Switzerland.
12. **P. Ghamisi**, J. A. Benediktsson, S. Phinn, "Fusion of Hyperspectral and LiDAR Data in Classification of Urban Areas," in *Proc. IEEE IGARSS, 2014*, pp. 181-184, **(Invited paper)**.
13. **P. Ghamisi** and J. A. Benediktsson, "Feature Selection of Hyperspectral Data by Considering the Integration of Genetic Algorithms and Particle Swarm Optimization," in *Proc. SPIE, Image and Signal Processing for Remote Sensing XX*, 2014, pp. 92440J-92440J-6.
14. **P. Ghamisi**, D. Wu, G. Cavallaro, J. A. Benediktsson, S. Phinn and N. Falco, "An advanced classifier for the joint use of LiDAR and hyperspectral data: Case study in Queensland, Australia," 2015 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Milan, 2015, pp. 2354-2357.
15. Y. Chen, C. Li, **P. Ghamisi**, C. Shi, "Convolutional neural network fusion of hyperspectral and LiDAR data for thematic classification," 2016 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Beijing, China.
16. P. Ghamisi, R. Souza, L. Rittner, J. A. Benediktsson, R. Lotufo, and X. X. Zhu, "Extinction profiles: A novel approach for the analysis of remote sensing," 2016 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Beijing, China.
17. **P. Ghamisi**, R. Souza, J. A. Benediktsson, X. X. Zhu, L. Rittner and R. Lotufo, "Extended extinction profile for the classification of hyperspectral images", *WHISPERS 2016*, Los Angeles, California.
18. N. Yokoya and **P. Ghamisi**, "Land-Cover monitoring using time-series hyperspectral data via fractional-order Darwinian particle swarm optimization Segmentation", *WHISPERS 2016*, Los Angeles, California.



19. J. Hu, **P. Ghamisi**, A. Schmitt, and X. X. Zhu, "Object based fusion of polarimetric SAR and hyperspectral imaging for land use classification", *WHISPERS 2016*, Los Angeles, USA.
20. N. He, L. Fang, S. Li, **P. Ghamisi**, J. A. Benediktsson, "Hyperspectral Images Classification by Fusing Extinction Profiles Feature", *IGARSS 2017*, accepted.
21. **P. Ghamisi**, B. Rasti, and X. X. Zhu, "Feature Fusion of Hyperspectral and LiDAR Data Using Extinction Profiles and Total Variation", *IGARSS 2017*, accepted.
22. J. Hu, Y. Wang, **P. Ghamisi**, X. X. Zhu, "Evaluation of PolSAR Similarity Measures with Spectral Clustering", *IGARSS 2017*, accepted.
23. L. Mou, **P. Ghamisi**, and X. X. Zhu, "Fully Conv-Deconv Network for Unsupervised Spectral-Spatial Feature Extraction of Hyperspectral Imagery via Residual Learning", *IGARSS 2017*, accepted, (**Invited paper**).
24. P. Du, J. Xia, **P. Ghamisi**, A. Iwasaki, J. A. Benediktsson, "Multiple Composite Kernel Learning for Hyperspectral Image Classification", *IGARSS 2017*, accepted.
25. N. Yokoya and **P. Ghamisi**, "Multimodal, Multitemporal, and Multisource Global Data Fusion for Local Climate Zones Classification Based on Ensemble Learning", *IGARSS 2017*, accepted.

## **TEACHING EXPERIENCE**

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- Remote Sensing Advanced Methods - Hyperspectral Remote Sensing 2016
- Remote Sensing Advanced Methods - Hyperspectral Remote Sensing 2017

## **STUDENTS**

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- LiChao Mou, *PhD student at DLR*
- Jingliang Hu, *PhD student at DLR*
- Changli Chen *Research Assistant*
- Rico Pirckhn *Remote Sensing Seminar Course*
- Alimzhan Rakhmatulin *Remote Sensing Seminar Course*
- Zhang Guichen *Remote Sensing Seminar Course and MSc student at TUM*

## **MANAGEMENT-RELATED COURSES**

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- Personnel management through efficient communication
- Leadership and team management

## **INVITED TALKS**

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- Spectral-Spatial Classification of Hyperspectral Data, 10/05/2015, *Invited by DLR*

## **REVIEW WORK**

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- IEEE Geoscience and Remote Sensing Letter (GRSL)
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)
- IEEE Trans. on Geoscience and Remote Sensing (TGRS)
- IEEE Geoscience and Remote Sensing Magazine (GRSM)
- IEEE Trans. on Image Processing
- IEEE Trans. on Neural Networks and Learning Systems
- Pattern Recognition Letter
- ISPRS
- ASPRS / PERS
- Knowledge-Based Systems
- Remote Sensing (MDPI)
- Canadian Journal of Remote Sensing (CJRS)
- Signal, Image and Video Processing
- Remote Sensing
- Neural Computing and Applications
- International Journal of Machine Learning and Cybernetics (JMLC)
- IET Image Processing
- World Applied Science Journal
- Indian Journal of Science and Technology
- 2012 IEEE Symposium on Wireless Technology and Applications (ISWTA 2012)
- WHISPERS 2013, 2014, 2016
- 11th International Workshop, MCS 2013 Nanjing, China
- ...

## **INTERNATIONAL RESEARCH COLLABORATION**

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- German Aerospace Center (DLR), Germany
- Technical University of Munich (TUM), Germany
- Heidelberg University, Germany
- Department of Information Engineering, Harbin Institute of Technology, China
- Signal Processing Lab (SPL), University of Iceland, Iceland

- Hyperspectral Computing Laboratory (HyperComp), University of Extremadura, Spain
- School of Electrical and Computer Engineering - UNICAMP, Brazil
- Biophysical Remote Sensing Group, Department of Geographical Sciences and Planning, University of Queensland, Australia
- RoboCorp at the Engineering Institute of Coimbra, Polytechnic Institute of Coimbra, Rua Pedro Nunes, Coimbra, Portugal <http://www2.isec.pt/~robocorp/>
- Department of Technology of Computers and Communications, University of Extremadura, Spain.
- Department of Images and Signal, GIPSA-lab, Grenoble, France.
- For a project entitled: "Enabling Intelligent GMES Services for Carbon and Water Balance Modeling of Northern Forest Ecosystems" with the following institutions:
  - VTT Technical Research Centre of Finland,
  - University of Helsinki,
  - The University of Sheffield,
  - Northern Research Institute Troms of Norway,
  - Institute of Biology of Komi Scientific Centre, Ural Branch of the Russian Academy of Sciences,

## **COLLABORATIVE PROPOSALS**

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- Enabling intelligent GMES services for carbon and water balance modelling of northern forest ecosystems for '*EU FP7*'.
- Knowledge Generation from Big Data Sets in Earth Observation for '*Australian Research Council Discovery*'.
- RAISE: Robot for the ActIve SENior for '*Horizon 2020*'
- Environmental Mapping and Monitoring of Iceland by Remote Sensing (EMMIRS) for '*The Icelandic Centre for Research (Rannis)*'

## **COURSES TAKEN**

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### **0.5 PhD**

1. Random Variables: 9 out of 10 (top score)
2. Pattern Recognition: 9.5 out of 10 (top score)
3. Soft Computing: 10 out of 10 (top score)

## SKILLS

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<i>Languages</i>	Persian (mother tongue) English (fluent) German (intermediate)
<i>Software and Pro- gramming development</i>	MATLAB, PYTHON, L <sup>A</sup> T <sub>E</sub> X, ENVI, Autodesk AutoCAD2000, Land

## REFERENCES

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1. Prof. Jon Atli Benediktsson: Supervisor, 2011-2012 President of the University of Iceland, Professor in Electrical and Computer Engineering, University of Iceland, Iceland  
Email: benedikt@hi.is
2. Prof. Antonio Plaza: Co-supervisor, Editor-in-Chief, IEEE Transactions on Geoscience and Remote Sensing and head of the Hyperspectral Computing Laboratory, University of Extremadura (UEx), Cceres, Spain  
Email: aplaza@unex.es