

**Name Surname:** Begüm Demir  
**Date of Birth:** 04.01.1984  
**Nationality :** Republic of Turkey  
**Address :** Dipartimento di Ingegneria e Scienza dell'Informazione  
Università degli Studi di Trento, Via Sommarive, 14 I-38123 Trento, Italy  
**Phone :** +393895326981  
**E-mail :** bgm\_dmr@yahoo.com, demir@disi.unitn.it  
**Web:** <http://www.begumdemir.com/>

## EDUCATION

**2007-2010:** Ph.D, Kocaeli University, Electronics and Telecom. Eng., Turkey  
Title of Thesis: Hyperspectral Image Classification with High Accuracy  
**2005-2007:** M.Sc, Kocaeli University, Electronics and Telecom. Eng., Turkey  
**2001-2005:** B.Sc, Kocaeli University, Electronics and Telecom. Eng., Turkey

## ACADEMIC EXPERIENCE

**2010-Present** Post Doc Researcher, Remote Sensing Laboratory, Department of Information Engineering and Computer Science, University of Trento.  
**2009** Visiting Researcher, Remote Sensing Laboratory, Department of Information Engineering and Computer Science, University of Trento.  
**2005 –2010:** Research Assistant, Kocaeli University Laboratory of Image and Signal Processing, Kocaeli, Turkey.

## AWARDS / HONORS

1-Awarded with Student Author Participation Grant by IEEE International Conference on Image Processing Committee, 2009.  
2-Supported by the International Research Fellowship Programme of The Scientific and Technological Research Council of Turkey (TÜBİTAK), 2009.  
3-Awarded with Academic Encouragement Prize (which is given according to the number of SCI papers obtained as a first author) by University of Kocaeli, 2008.  
4-Ranked 2nd in academic research evaluation among research assistants of University of Kocaeli, Engineering Faculty, Turkey, 2007.  
5-Ranked 5th in academic research evaluation among research assistants of University of Kocaeli, Engineering Faculty, Turkey, 2006.

## RESEARCH PROJECTS

1-“Hyperspectral Classification, Segmentation and Recognition”, Supported by the Turkish Scientific and Technical Research Council (TUBITAK), under contract EEEAG/107E011. Project Researcher. (2007-2009)

2-“Optimal Filtering Based Multiple Description Coding”, Supported by the Turkish Scientific and Technical Research Council (TUBITAK), under contract EEEAG/107E155. Project Researcher. (2007-2009)

3-“Hyperspectral Data Classification, Recognition and Displaying In Multiview Auto-Stereoscopic Display”, Supported by the KOU Scientific Projects Unit, KOU 2007/45. Project Researcher.(2007-2008)

4-“Computer Aided Visual Documentation, Archiving Systems, Image and Video Indexing, Video Transmission and Multimedia Databases for E-Government”, Supported by DPT, under contract 2004K120720. Project Researcher.(2004-2006)

## PUBLICATIONS

### A) INTERNATIONAL JOURNALS

1. **B. Demir**, S. Ertürk “Empirical mode decomposition of hyperspectral images for support vector machine classification”, IEEE Transactions on Geoscience and Remote Sensing, accepted for publication.
2. **B. Demir**, C. Persello, L. Bruzzone “Batch mode active learning methods for the interactive classification of remote sensing images“, IEEE Transactions on Geoscience and Remote Sensing, accepted for publication.
3. **B. Demir**, S. Ertürk, M. K. Güllü “Hyperspectral image classification using denoising of intrinsic mode functions”, IEEE Geoscience and Remote Sensing Letters, accepted for publication.
4. **B. Demir**, S. Ertürk, “Clustering based extraction of border training patterns for accurate SVM classification of hyperspectral images”, IEEE Geoscience and Remote Sensing Letters, vol. 6, no. 4, pp. 840-844, Oct 2009.
5. **B. Demir**, A. Çelebi, S. Ertürk, “A Low-complexity approach for color display of hyperspectral remote-sensing images using one-bit transform based band selection”, IEEE Transactions on Geoscience and Remote Sensing, vol. 47, no. 1, pp. 97-105, January 2009
6. Y. Yapıcı, **B. Demir**, S. Ertürk, O. Urhan, “Down-sampling based multiple description image coding using optimal filtering”, Journal of Electronic Imaging, vol. 17, no. 3, Article ID 033018, July 2008.
7. **B. Demir**, S. Ertürk, “Improved classification and segmentation of hyperspectral images using spectral warping”, International Journal of Remote Sensing, vol. 29, pp. 3657-3663, June 2008.
8. **B. Demir**, S. Ertürk, “Phase Correlation based Redundancy Removal in Feature Weighting Band Selection for Hyperspectral Images”, Int. Journal of Remote Sensing, no. 29, pp. 1801-1807, 2008.
9. **B. Demir**, S. Ertürk, “Hyperspectral Image Classification Using Relevance Vector Machines”, IEEE Geoscience and Remote Sensing Letters, vol. 4, no. 4, pp. 586-590, Oct 2007.

10. **B. Demir**, S. Ertürk, “Block Motion Estimation Using Adaptive Modified Two-Bit Transform”, IET Image Processing, vol. 1, no. 2, pp. 215-222, June 2007.

#### B) INTERNATIONAL CONFERENCE

1. **B. Demir**, S. Ertürk, “Empirical mode decomposition based decision fusion for higher hyperspectral image classification accuracy”, International Conference on Geoscience and Remote Sensing Symposium, Honolulu, Hawaii, USA, July 2010, Accepted for publication.
2. **B. Demir**, S. Ertürk, “Improving SVM classification accuracy using a hierarchical approach for hyperspectral images”, IEEE International Conference on Image Processing, Nov 2009, Cairo, Egypt.
3. **B. Demir**, S. Ertürk, O. Urhan, “Improved quality multiple description 3D mesh coding with optimal filtering”, IEEE International Conference on Image Processing, Nov 2009, Cairo, Egypt.
4. **B. Demir**, S. Ertürk, “Accurate SVM classification using border training patterns”, First Workshop on Hyperspectral Image and Signal Processing: Evolution on Remote Sensing, August 2009, Grenoble, France.
5. **B. Demir**, S. Ertürk, “An Empirical mode decomposition and composite kernel approach to increase hyperspectral image classification accuracy”, International Conference on Geoscience and Remote Sensing Symposium, Cape Town, South Africa, July 2009.
6. **B. Demir**, S. Ertürk, “Increasing hyperspectral image classification accuracy for data sets with limited training samples by sample interpolation”, 4th International Conference on Recent Advances in Space Technologies (RAST2009), June 2009
7. **B. Demir**, S. Ertürk, M. K. Güllü, “Wavelet shrinkage denoising of intrinsic mode functions of hyperspectral image bands for classification with high accuracy”, International Conference on Geoscience and Remote Sensing Symposium, Cape Town, South Africa, July 2009.
8. **B. Demir**, S. Ertürk, “Improved hyperspectral image classification with noise reduction pre-process”, European Signal Processing Conference (EUSIPCO-2008), Lausanne, Switzerland, Aug 2008.
9. **B. Demir**, S. Ertürk, “Spectral magnitude and spectral derivative feature fusion for improved classification of hyperspectral images”, International Conference on Geoscience and Remote Sensing Symposium, Boston, Massachusetts, U.S.A, July 2008.
10. **B. Demir**, S. Ertürk, “Reducing the computational load of hyperspectral band selection using the one-bit transform of hyperspectral bands”, International Conference on Geoscience and Remote Sensing Symposium, Boston, Massachusetts, U.S.A, July 2008.
11. **B. Demir**, S. Ertürk, “Empirical mode decomposition pre-process for higher accuracy hyperspectral image classification”, International Conference on Geoscience and Remote Sensing Symposium, Boston, Massachusetts, U.S.A, July 2008.
12. Ç. Ateş, Y. Ürgün, **B. Demir**, O. Urhan, S. Ertürk, “Polyphase downsampling based multiple description image coding using optimal filtering with flexible redundancy insertion”, IEEE International Conference on Signals and Electronic Systems, Sept. 2008.
13. **B. Demir**, S. Ertürk, “Phase correlation based supervised classification of hyperspectral images using multiple class representatives”, International Conference on Geoscience and Remote Sensing Symposium, 23-27 July 2007, Barcelona, Spain, July 2007.

14. **B. Demir**, S. Ertürk, “Hyperspectral data classification using RVM with pre-segmentation and RANSAC”, International Conference on Geosience and Remote Sensing Symposium, 23-27 July 2007, Barcelona, Spain, July 2007.
15. **B. Demir**, S. Ertürk, “More sparsity in hyperspectral SVM classification using unsupervised pre-segmentation in the training phase”, 3rd International Conference on Recent Advances in Space Technologies (RAST2007), 14-16 June 2007, Istanbul, Turkey, June 2007.
16. **B. Demir**, S. Ertürk, “Block motion estimation using modified two-bit transform”, Lecture Notes in Computer Science (LNCS), Springer-Verlag, vol. 4263, pp. 522-531, Nov 2006.

### C) NATIONAL CONFERENCES

1. **B. Demir**, S. Ertürk, “Empirical mode decomposition based decision fusion for hyperspectral image classification”, IEEE 17th Signal Processing and Communications Applications Conference (SIU'2010), April 2010.
2. **B. Demir**, S. Ertürk, “High accuracy hyperspectral image classification based on empirical mode decomposition and composite kernel”, IEEE 17th Signal Processing and Communications Applications Conference (SIU'2009), April 2009.
3. A.T. Çelebi, **B. Demir**, M.K. Güllü, S. Ertürk, “Facial feature matched one-bit transform for face recognition”, IEEE 16th Signal Processing and Communications Applications Conference (SIU'2008), April 2008.
4. **B. Demir**, S. Ertürk, “Hiperspektral görüntülemenin savunma teknolojileri uygulamaları ve spektral eğriltme sayesinde yüksek tanıma başarımı”, 4th National Defense Technologies Conference (SAVTEK 2008), June 2008.
5. **B. Demir**, S. Ertürk, “Hyperspectral image classification based on empirical mode decomposition”, IEEE 16th Signal Processing and Communications Applications Conference (SIU'2008), April 2008.
6. Z. Kızıltoprak, **B. Demir**, B. Diri, “Ön-işlem kullanılarak hiperspektral görüntülerde ilgililik vektör makineleri ile sınıflandırma başarımının artırılması”, IEEE 16th Signal Processing and Communications Applications Conference (SIU'2008), April 2008.
7. **B. Demir**, S. Ertürk, “Wavelet denoising before support vector classification of hyperspectral images”, IEEE 15th Signal Processing and Communications Applications Conference (SIU'2007), June 2007.
8. Y. Yapıcı, **B. Demir**, S. Ertürk, O. Urhan, “Downsampling based multiple description coding with optimal reconstruction filters”, IEEE 15th Signal Processing and Communications Applications Conference (SIU'2007), June 2007.
9. **B. Demir**, S. Ertürk, “Sparsity/accuracy trade-off for vector machine based hyperspectral classification”, IEEE 15th Signal Processing and Communications Applications Conference (SIU'2007), June 2007.
10. İ. Yıldırım, **B. Demir**, S. Ertürk, “3-Dimensional modeling and visualization of cultural assets for E-government”, IEEE Signal Processing and Communications Applications Conference (SIU'2006), April 2006.
11. **B. Demir**, S. Ertürk, “Flexible multiple description 3-D model coding using wavelet subdivision surfaces”, IEEE Signal Processing and Communications Applications Conference (SIU'2006), April 2006.

## **ATTENDED CONFERENCES**

1. IEEE International Conference on Image Processing, 7-10 Nov 2009, Cairo, Egypt.
2. IEEE International Conference on Geosience and Remote Sensing Symposium, 7-12 July 2009, Cape town, South Africa
3. International Conference on Geosience and Remote Sensing Symposium, 6-11 July 2008, Boston, Massachusetts, U.S.A.
4. International Conference on Geosience and Remote Sensing Symposium, 23-27 July 2007, Barcelona, Spain.
5. 3rd International Conference on Recent Advances in Space Technologies, 14-16 June 2007, Istanbul, Turkey.
6. 4th National Defense Technologies Conference, 26-27 June 2008, Ankara, Turkey
7. IEEE 16th Signal Processing and Communications Applications Conference, 20-22 April 2008, Didim, Turkey.
8. IEEE 15th Signal Processing and Communications Applications Conference, 11-13 June 2007, Eskişehir, Turkey.
9. IEEE 14th Signal Processing and Communications Applications Conference, 17-19 April 2006, Antalya, Turkey.