

**Kivanc Kose**

Dermatology Service, Memorial Sloan Kettering Cancer Center, New York, NY

kosek@mskcc.org

(+1-646) 8886241

---

**EDUCATION**

---

*Memorial Sloan Kettering Cancer Center*  
**Senior Research Scientist**

October 2016-

*Memorial Sloan Kettering Cancer Center*  
**Research Scholar**

December 2014-October  
2016

*Memorial Sloan Kettering Cancer Center*  
**Research Fellow**

December  
2012-December 2014

*Bilkent University*  
**Project Researcher**

November 2012

*Bilkent University*  
**Ph.D. in Electrical and Electronics Engineering**  
*Thesis Topic: Signal and Image Processing Algorithms Using Interval Convex Programming and Sparsity*

August 2012

*Bilkent University*  
**M.Sc. in Electrical and Electronics Engineering**  
*Thesis Topic: 3D Model Compression Using Image Compression based Methods*

January 2007

*Bilkent University*  
**B.Sc. in Electrical and Electronics Engineering**

June 2004

---

**PROFESSIONAL ACTIVITY**

---

*Signal, Image and Video Processing-Springer*  
**Associate Editor**

August 2013 -

*Turkish Telecom*  
**Project Researcher**  
Ambient Assisted Living System Using Vibration and PIR Sensors

2012

*Turkish Academy of Science*  
**Project Researcher**  
Compressive Sensing using Entropy functional Based Methods project

2010-2012

*European Union FP7*  
**Project Researcher**  
MIRACLE Project (Extracting 3D information from microscopic images)

2010-2012

<i>European Union FP7</i> <b>Project Researcher</b> FIRESENSE project (Wildfire detection and propagation modeling)	2009- 2012
<i>European Union FP6</i> <b>Project Researcher</b> 3DTV (Compression of 3D mesh models using image compression methods)	2005-2008
<i>Reviewer</i> <b>IEEE Transactions on Image Processing</b>	2014-
<i>Reviewer</i> <b>IEEE Signal Processing Letters</b>	2014-
<i>Reviewer</i> <b>Journal of Electronic Imaging</b>	2014-
<i>Reviewer</i> <b>International Conference on Acoustics, Speech and Signal Processing (ICASSP)</b>	2013-
<i>Reviewer</i> <b>European Signal Processing Conference (Eusipco)</b>	2014-
<i>Reviewer</i> <b>3DTV-Conference</b>	2010-
<i>Reviewer</i> <b>Signal Processing and Communications Applications Conference (SIU)</b>	2009-
<i>Teaching Assistant</i> <b>Bilkent University, EE Dept.</b> Digital Signal Processing and Advanced Signal Processing Course	2006-2012
<i>System Administrator</i> <b>Bilkent University, EE Dept.</b>	2008-2012

- [J22] Yelamos O., Cordova M., Blank N., **Kose K.**, Duzsa S., Lee E., Rajadhyaksha M., Kishwer S.N., Rossi M. A., "Correlation of handheld reflectance confocal microscopy with radial video mosaicking for margin mapping of lentigo maligna and lentigo maligna melanoma", Vol. 153, Iss 12, pp. 1278-1284, 2017
- [J21] **Kose K.**, Gou M., Yelamos O., Cordova M., Rossi A., Nehal KS., Flores ES., Camps O., Dy J., Brooks DH., Rajadhyaksha M., "Automated video-mosaicking approach for confocal microscopic imaging in vivo: an approach to address challenges in imaging living tissue and extend field of view", Vol.7, Iss 1, 2017
- [J20] Yelamos O., Cordova M., Blank N., **Kose K.**, Lee E., Rajadhyaksha M., "Margin Delineation of Lentigo Maligna Using Reflectance Confocal Microscopy Videomosaicking and Adhesive Paper Rings", Journal of American Academy of Dermatology, Vol. 76, Iss. 6, pp.AB166, 2017
- [J19] Yelamos O., Hibler B., Cordova MA., Hollman T.J., **Kose K.**, Marchetti M., Myskowski P., Pulitzer MP., Rajadhyaksha M., Rossi AM., Jain M., "Handheld Reflectance Confocal Microscopy for the Detection of Recurrent Extramammary Paget Disease", JAMA Dermatol. Published online May 10, 2017
- [J18] Gantha, S., Jordan, M., **Kose K.**, Brooks, D.H., Rajadhyaksha, M., Dy, J.G., A Marked Poisson Process Driven Latent Shape Model for 3D Segmentation of Reflectance Confocal Microscopy Image Stacks of Human Skin, IEEE Transactions on Image Processing, Vol. 26, Iss. 1, 2016
- [J17] Bozkurt A., **Kose, K.**, AlessiFox, C, Dy, J.G., Brooks D.H., Rajadhyaksha M., Unsupervised delineation of stratum corneum using reflectance confocal microscopy and spectral clustering, Skin Research and Technology, Early Access, August, 2016
- [J16] Tofighi, M., Yorulmaz, O., **Kose, K.**, Yildirim, D.C., Cetin-Atalay, R., Cetin, A.E., Phase and TV Based Convex Sets for Blind Deconvolution of Microscopic Images, IEEE Journal of Selected Topics in Signal Processing, Vol. 10. Iss. 1, pp.81-91, 2016
- [J15] Bajaj S., Marchetti M.A., Navarrete-Dechen, C., Dusza S.W., **Kose K.**, Marghoob A. A., The Role of Color and Morphologic Characteristics in Dermoscopic Diagnosis, JAMA Dermatology. Published online March 23, 2016.
- [J14] Tofighi M, **Kose K.**, Cetin A. E., Denoising Images Corrupted by Impulsive Noise Using Projections onto Epigraph Set of the Total Variation Function (PES-TV), Signal Image and Video Processing, Published Online 30 October 2015.
- [J13] Bajaj S., Dusza S.W., Marchetti M.A., Wu X., Fonseca M. **Kose K.** et al. Growth-Curve Modeling of Nevi With a Peripheral Globular Pattern. JAMA Dermatology 151(12):1338-1345, 2015
- [J12] Flores, E.S., Cordova, M., **Kose, K.**, et al; Intraoperative imaging during mohs surgery with reflectance confocal microscopy: initial clinical experience. J. Biomed. Opt. 0001;20(6):061103, February 2015.
- [J11] **Kose, K.**, Atalay, C.R., Cetin, A.E., Special issue on microscopic image processing: Editorial, "Signal, Image and Video Processing", doi: 10.1007/s11760-014-0715-7, available online, November 2014.

- [J10] Kurugol, S.\*, **Kose, K.** \*, Park, B., Dy, J.G., Brooks, D. H., Rajadhyaksha, M., Automated Delineation of Dermal-Epidermal Junction In Reflectance Confocal Microscopy Image Stacks Of Human Skin, 'Journal of Investigative Dermatology', Volume 135:3, Pages 710-717, March 2015. (\*Shared first authorship)
- [J9] **Kose, K.**, Cordova M., Duffy, M., Flores, E.S., Brooks, D.H., Rajadhyaksha, M., Video-Mosaicing of Reflectance Confocal Images For Examination of Extended Areas of Skin In Vivo, "British Journal of Dermatology", 171(5): 12391241, 2014
- [J8] **Kose. K.**, Gunay, O., Cetin, A. E., Compressive sensing using the modified entropy functional, "Digital Signal Processing", Volume 24, Pages 6370, January 2014
- [J7] Keskin, F., Suhre, A., **Kose, K.**, Ersahin, T., Cetin, A. E., Cetin-Atalay, R., Image Classification of Human Carcinoma Cells Using Complex Wavelet-Based Covariance Descriptors, "PLoS ONE", 8(1): e52807. doi:10.1371/journal.pone.0052807, 2013
- [J6] Dimitropoulos, K., Gunay, O ., **Kose, K.**, Erden, F., Chaabane, F., Tsalakanidou, F., Grammalidis, N., Cetin, A. E., Video-Based Flame Detection for the protection of Cultural Heritage, "International Journal of Heritage in the Digital Era", vol. 2, no. 1, March 2013.
- [J5] Erden, F., Toreyin, B. U., Soyer, E. B., Inac, I., Gunay, O., **Kose, K.**, Cetin, A. E., Wavelet based flickering flame detector using differential PIR sensors, "Fire Safety Journal", vol. 53, pp. 13-18, ISSN 0379-7112, October 2012.
- [J4] Gunay, O., Toreyin, B., **Kose, K.**, Cetin, A. E., Entropy Functional Based Online Adaptive Decision Fusion Framework with Application to Wildfire Detection in Video, "IEEE Transactions on Image Processing", 99,1-1,2012
- [J3] **Kose K.**, Cetin A.E., Low-Pass Filtering of Irregularly Sampled Signals Using a Set Theoretic Framework [Lecture Notes],"Signal Processing Magazine, IEEE", 28, 4, 117-121, 2011
- [J2] Suhre, A., **Kose, K.**, Cetin, A.E., Gurcan, M.N., Content-adaptive color transform for image compression, "Optical Engineering", 50, 057003, 2011
- [J1] **Kose, K.**, Cetin, A.E., Gudukbay, U., Onural, L., 3D Model compression using Connectivity-Guided Adaptive Wavelet Transform built into 2D SPIHT, " Journal of Visual Communication and Image Representation", 21, 1, 17-28, Elsevier, 2010

---

#### PEER REVIEWED CONFERENCE PUBLICATIONS

---

- [C27] Bozkurt A., **Kose K.**, Alessi-Fox A.C., Gill M., Dy G.J., Brooks, D., Rajadhyaksha M., A Multiresolution Convolutional Neural Network with Partial Label Training for Annotating Reflectance Confocal Microscopy Images of Skin, to appear at MICCAI'18
- [C26] Bozkurt A., **Kose K.**, Coll-Font J., Alessi-Fox A.C., Gill M., Dy G.J., Brooks, D., Rajadhyaksha M., Delineation of Skin Strata in Reflectance Confocal Microscopy Images using Recurrent Convolutional Networks with Toeplitz Attention, Machine Learning for Health workshop at Conference on Neural Information Processing Systems (NIPS), 2017

- [C25] **Kose K.**, Bozkurt A., Alessi-Fox A.C., Gill M., Dy G.J., Brooks, D., Rajadhyaksha M., A Multiresolution Deep Learning Framework for Automated Annotation of Reflectance Confocal Microscopy Images, in Biophotonics Congress: Biomedical Optics Congress 2018 (Microscopy/Translational/Brain/OTS), OSA Technical Digest (Optical Society of America) 2018
- [C24] Bozkurt A., Gale T., Kose K., Fox CA., Brooks DH., Rajadhyaksha M., Dy J., "Delineation of Skin Strata in Reflectance Confocal Microscopy Images with Recurrent Convolutional Networks," IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), Honolulu, HI, USA, 2017, pp. 777-785. 2017
- [C23] Tofighi, M., **Kose, K.**, Cetin, A.E., Denoising Using Projections onto the Epigraph Set of Convex Cost Function, International Conference on Image Processing (ICIP), 2014.
- [C22] Tofighi, M., Bozkurt, A., **Kose, K.**, Cetin, A.E. Deconvolution using projections onto the epigraph set of a convex cost function, Signal Processing and Communications Applications Conference (SIU), 2014
- [C21] **Kose, K.**, Rajadhyaksha, M. Computer based algorithms for classification of skin cancer morphology in reflectance confocal microscopy images, Montagna Symposium on the Biology of Skin/Society for Investigative Dermatology (SID), 2013 (to appear)
- [C20] Cetin. A. E., Bozkurt, A., Gunay, O., Habiboglu, Y. H, **Kose, K.**, Onaran, I., Sevimli, R. A., Projections Onto Convex Sets (POCS) Based Optimization by Lifting, IEEE GlobalSIP Symposium on Low-Dimensional Models and Optimization in Signal Processing, 2013
- [C19] Eleyan, A., **Kose, K.** Cetin, A. E. Image Feature Extraction Using Compressive Sensing, 5<sup>th</sup> International Conference in Image Processing & Communications (IP&C), 2013
- [C18] Dimitropoulos, K., Gunay, O., **Kose, K.**, Erden, F., Chaabane, F., Tsalakanidou, F., Grammalidis, N., Cetin, A. E., Video-Based FLame Detection for the protection of Cultural Heritage, 4<sup>th</sup> International Conference on Progress in Cultural Heritage Preservation (EUROMED), 2012
- [C17] **Kose K.**, Cevher V., Cetin A.E., Filtered Variation Method for Image Denoising and Sparse Signal Processing, "International Conference on Acoustics, Speech and Signal Processing (ICASSP 2012)", 2012
- [C16] **Kose, K.** Gunay O., Cetin A. E. Entropy Minimization Based Robust Algorithm for Adaptive Networks, to appear at "IEEE 20<sup>th</sup> Conference on Signal Processing and Communications Application (SIU'12)", 2012
- [C15] Gunay O., **Kose, K.**, Cetin A. E. Entropy Functional Based Adaptive Decision Fusion Framework, to appear at "IEEE 20<sup>th</sup> Conference on Signal Processing and Communications Application (SIU'12)", 2012
- [C14] Habiboglu, Y. H., **Kose K.**, Cetin, A.E., Fractional Wavelet Transform Using an Unbalanced Lifting Structure, "Proceedings of SPIE, the International Society for Optical Engineering", Society of Photo-Optical Instrumentation Engineers (SPIE), 2011.
- [C13] Eleyan, A., **Kose, K.**, Cetin, A. E., New face representation using Compressive Sensing, "IEEE 19<sup>th</sup> Conference on Signal Processing and Communications Applications (SIU'11)", 558-561, 2011
- [C12] Grammalidis, N., Cetin, A. E., Dimitropoulos, K., Tsalakanidou, F., **Kose, K.**, Gunay, O., Gouverneur, B., Torri, D., Kuruoglu, E., Tozzi, S., A Multi-Sensor Network for the Protection of Cultural Heritage, "European Signal Processing Conference (Eusipco'11)", Spain, 2011

- [C11] Dimitropoulos, K., **Kose, K.**, Grammalidis, N., Cetin, A. E., Fire Detection and 3-D Fire Propagation Estimation for the Protection of Cultural Heritage Areas, "ISPRS Technical Commission VIII Symposium", 2010
- [C10] Suhre, A., **Kose, K.**, Cetin, A.E., Gurcan, M.N., "Content-adaptive color transform for image compression", Image Processing (ICIP), 2010 17th IEEE International Conference on , pp.189-192, 26-29 Sept. 2010.
- [C9] Suhre, A., **Kose, K.**, Cetin, A.E., Image compression using a histogram-based color transform, "IEEE 18<sup>th</sup> Conference on Signal Processing and Communications Application (SIU'10)" 344-347,2010
- [C8] **Kose, K.**, Yilmaz, E., Cetin, A.E., Progressive compression of digital elevation data using meshes, "IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2009)", 4, IV-502-IV-505, 2009
- [C7] **Kose, K.** Cetin, A.E., Motion based clustering of model animations using PCA, "IEEE 17<sup>th</sup> Conference on Signal Processing and Communications Applications, SIU'09", 317-320,2009
- [C6] **Kose, K.**, Grammalidis, N., Yilmaz, E., Cetin, A. E., 3D Forest Fire Propagation Simulation, "3DTV Conference: The True Vision-Capture, Transmission and Display of 3D Video" 369-372, 2008
- [C5] **Kose, K.**, Yilmaz, E., Grammalidis., N., Aktug B., Cetin A.E. Aydin, I., 3 Boyutlu Orman Yangini Simulasyonu Sistemi, "IEEE 16<sup>th</sup> Conference on Signal Processing, Communication and Applications (SIU 2008)", 2008
- [C4] **Kose, K.**, Cetin, A.E., Gudukbay U., Onural, L., Connectivity-guided adaptive lifting transform for Image like compression of meshes,"3DTV Conference", 1-4, 2007
- [C3] **Kose, K.**, Cetin, A. E., Gudukbay, U., Onural, L., Baglanirlikla Yonlendirilmis Uyarlamali Dalgacik Donusumu ile Uc Boyutlu Model Sikistirilmesi, IEEE 15<sup>th</sup> conference on Signal Processing and Communications Applications (SIU 2007)", 1-4, 2007
- [C2] **Kose, K.**, Cetin, A.E., Gudukbay U., Onural, L., Dikdortgensele Olmayan Dalgacik Donusumune Dayali Cok Cozunurluklu Uc Boyutlu Model Analizi ve Sikistirilmesi, "IEEE 14<sup>th</sup> Conference on Signal Processing and Communications Applications (SIU 2006)",1-4,2006
- [C1] **Kose, K.** Cetin, A.E., Gudukbay, U., Onural, L., Nonrectangular Wavelets for Multiresolution Mesh Analysis and Compression, "Independent Component Analysis, Wavelets, Unsupervised Smart Sensors, and Neural Networks IV, Proceedings - SPIE The International Society for Optical Engineering",2006

---

#### CONFERENCE PUBLICATIONS

---

- [C14] **Kose K.**, Bozkurt A., Ariafar, S. Alessi-Fox A.C., Gill M., Dy G.J., Brooks, D., Rajadhyaksha M., "Deep learning based classification of morphological patterns in reflectance confocal microscopy to guide noninvasive diagnosis of melanocytic lesions", SPIE Photonics West'17
- [C13] **Kose K.**, Gou M., Yelamos O., Cordova A.M., Rossi A., Nehal K., Camps I.O., Dy JG, Brooks D.H., Rajadhyaksha M., Video-mosaicking of in vivo reflectance confocal microscopy images for noninvasive examination of skin lesions", SPIE Photonics West'17

- [C12] Flores S.E., Yelamos, O, Cordova A.M., **Kose K.**, Phillips W., Rossi A., Nehal K., Rajadhyaksha M., "Peri-operative imaging of cancer margins with reflectance confocal microscopy during Mohs micrographic surgery: feasibility of a video-mosaicking algorithm", SPIE Photonics West'17
- [C11] Vasefi F., MacKinnon N.B., Jain M., Cordova M., **Kose K.**, Rajadhyaksha M. Halpern A.C., Farkas D.L., "In vivo features of melanocytic lesions: multimode hyperspectral dermoscopy, reflectance confocal microscopy, and histopathologic correlates", SPIE Photonics West'17
- [C10] **Kose K.**, Alessi-Fox, C., Gill, M., Dy, J., Brooks, D., Rajadhyaksha, M., A machine learning method for identifying morphological patterns in reflectance confocal microscopy mosaics of melanocytic skin lesions in-vivo, Proc. SPIE 9689, Photonic Therapeutics and Diagnostics XII, 968908, 2016
- [C9] Bozkurt, A., **Kose K.**, Alessi-Fox, C., Dy, J.G., Brooks, D.H., Rajadhyaksha, M., An unsupervised machine learning method for delineating stratum corneum in reflectance confocal microscopy stacks of human skin in vivo, Proc. SPIE 9689, Photonic Therapeutics and Diagnostics XII, 96890Z, 2016
- [C8] **Kose, K.**, Gou M., Alessi-Fox, C., Dy, J., Camps, O., Brooks, D., Rajadhyaksha, M., Analysis of In-Vivo Reflectance Confocal Microscopy Images of Skin, International Symposium on Biomedical Image Processing, New York, 2015.
- [C7] Flores, E. S., Cordova, M., **Kose, K.**, Phillips W., Rossi A., Nehal K., Rajadhyaksha, M., Feasibility of intraoperative imaging with reflectance confocal microscopy to potentially guide Mohs surgery, The 7th NCIGT and NIH Image Guided Therapy Workshop, Sept 2014.
- [C6] **Kose, K.**, Cordova M., Dy, J. G., Brooks, D. H., and Rajadhyaksha, M., Abstract in Deconstructing Skin: RCM and FCM interpretation with quantitative image analysis tools, Dermatol Pract Concept. 2014 Jul; 4(3): 23, .Jul 2014.
- [C5] **K. Kose**, C. Alessi-fox, Dy, J. G., Brooks, D. H., and Rajadhyaksha, M., Computer-aided Algorithm for Delineating Dermal Epidermal Junction in Reflectance Confocal Images of Skin, Lasers in Medicine & Biology, Gordon Research Conference, July 2014.
- [C4] **K. Kose**, Dy, J. G., Brooks, D. H., and Rajadhyaksha, M., Image Analysis Based Automated DEJ Detection Method for RCM Stacks, SPIE Photonics West, 2014.
- [C3] Bozkurt A., **Kose K.**, Sourati J., Alessi-Fox C., Dy, J. G., Brooks, D. H., and Rajadhyaksha, M., Computer based algorithm for estimating stratum corneum thickness from Reflectance Confocal Microscopy (RCM) images, SPIE Photonics West, 2014.
- [C2] Flores, E.S., Cordova, M., **Kose, K.**, Phillips, W., Nehal, K., Rajadhyaksha, M., Feasibility of Intraoperative Imaging during Mohs Surgery with Reflectance Confocal Microscopy, SPIE BiOS, 89260F-89260F-12, 2014
- [C1] Sourati, J., **Kose, K.**, Rajadhyaksha, M., Dy, J.G., Erdogmus, D., Brooks, D.H., Automated localization of wrinkles and the dermo-epidermal junction in obliquely oriented reflectance confocal microscopic images of human skin SPIE BiOS, 856503-856503-9

---

#### ARXIV PAPERS

---

- [A5] Tofighi, M., **Kose, K.**, Cetin, A.E., Signal Reconstruction Framework Based On Projections Onto Epigraph Set Of A Convex Cost Function (PESC), arXiv preprint arXiv:1402.2088, 2014

- [A4] Tofighi, M., **Kose, K.**, Cetin, A.E., Denoising Using Projection Onto Convex Sets (POCS) Based Framework, arXiv:1306.2516, 2014
- [A3] Cetin, A. E., Bozkurt, A., Gunay, O., Habiboglu, Y. H, **Kose, K.**, Onaran, I., Sevimli, R. A., Projections Onto Convex Sets (POCS) Based Optimization by Lifting, arXiv:1306.2516, 2013
- [A2] **Kose, K.**, Cetin, A. E., Compressive Sensing Using the Entropy Functional, Arxiv preprint arXiv:1101.5079, 2011
- [A1] Gunay, O., Toreyin, B.U., **Kose, K.**, Cetin, A.E., Online Adaptive Decision Fusion Framework Based on Entropic Projections onto Convex Sets with Application to Wildfire Detection in Video, Arxiv preprint arXiv", 1101.4749, 2011

---

## HONORS AND AWARDS

---

<i>Society for Investigative Dermatology Eugene M. Farber Travel Awards for Young Investigators</i>	
<b>Montagna Symposium on the Biology of Skin</b>	2014
Computer-based algorithms for classification of skin cancer morphology in reflectance confocal microscopy images	
<i>Best Paper</i>	
<b>4<sup>th</sup> International Conference on Progress in Cultural Heritage Preservation (EUROMED)</b>	2012
<i>Graduate Scholarship</i>	
<b>Full Graduate Scholarship from EU FP6/FP7 and Nationally Funded projects</b>	2010-2012
<i>Bilkent University Electrical and Electronics Engineering Department Graduate Research Conference</i>	
<b>Best Paper Award</b>	2012

---

## TECHNICAL SKILLS

---

*Programming Languages*  
**MATLAB**

*Tools, Software*  
**MATLAB, LaTeX**

*Operating Systems*  
**Windows, Unix, Mac OS**