

Yücel YEMEZ (Asst. Prof.)

Department of Computer Engineering
Koç University
Rumelifeneri Yolu
34450 Sarıyer, Istanbul, Turkey
Tel: +90 (212) 338-1585
Fax: +90 (212) 338-1548
E-Mail: yyemez@ku.edu.tr

Education

- 1992-1997 : **PhD**, Doctor of Philosophy in Electrical and Electronic Engineering
Bogazici University, Istanbul, Turkey
Option: Information and Communication
Specialization : Object-oriented video coding and transmission (MPEG-4)
- 1989-1992 : **MS**, Master of Science in Electrical and Electronic Engineering
Bogazici University, Istanbul, Turkey
Option: Information and Communication
Specialization : Signal and Image Processing
- 1985-1989 : **BS**, Bachelor of Science in Electrical and Electronic Engineering
Middle East Technical University, Ankara, Turkey
Option: Computer and Telecommunications
- 1982-1985 Ankara Fen Lisesi

Language Proficiency

- English: Fluent
- French: Fluent

Fields of Competence

3D reconstruction and modeling, 3D computer graphics for animation and visualization, hierarchical and progressive 3D data transmission, content-based 3D retrieval, 3D digitization of cultural heritage, 2D&3D computer vision, image processing, pattern recognition, biometrics, multimodal person identification, object-oriented video processing techniques for MPEG-4.

Professional Experience

At present : Assistant Professor in Koç University, Computer Engineering Department, Istanbul, Turkey.

October 1999 – June 2000: Postdoctoral Researcher in ENST (*Ecole Nationale Supérieure des Télécommunications*), Signal and Image Processing Department, Paris, France.

Worked for MPEG4-Web3D standardization activities in collaboration with R&D Center of France Telecom (CNET).

September 1997- October 1999: Postdoctoral Fellow in ENST, Signal and Image Processing Department, Paris, France.

Worked in the ESPRIT (New Information Technologies Program) project of the European Community, titled ACOHIR (*Accurate Color High Resolution Recording and Reproduction of 3D Objects for Electronic Publishing*).

1990-1997 : Teaching assistant in Department of Mathematics, Bogazici University.

1993-1996 : Researcher in BUSIM (*Bogazici University Signal and Image Processing*) Laboratory, Istanbul. Worked in the projects titled "Object-oriented coding of video sequences at low-bit rates" and "Human face modeling for video coding", both supported by TUBITAK (The Scientific and Technical Research Council of Turkey).

International Research Collaborations

SIMILAR, European FP6 Network of Excellence on 'Human-machine interfaces similar to human-human communication', started in January 2004

3DTV, European FP6 Network of Excellence on 'Integrated 3-D Television – Capture, Transmission and Display', started in September 2004

Publications

Journal Papers

- Y. Yemez and C.J. Wetherilt, "A volumetric fusion technique for surface reconstruction from silhouettes and range data," *Computer Vision and Image Understanding*, Vol. 105, No. 1, pp. 30–41, 2007.
- M. E. Sargin, Y. Yemez, E. Erzin, and A. M. Tekalp, "Audio-Visual Synchronization and Fusion using Canonical Correlation Analysis," submitted to *IEEE Transactions on Multimedia*.
- M. E. Sargin, Y. Yemez, E. Erzin, and A. M. Tekalp, "Analysis of Head Gesture and Prosody Patterns for Prosody-Driven Head-Gesture Animation," submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence*.
- H.E. Cetingul, Y. Yemez, E. Erzin, A. M. Tekalp, "Discriminative Analysis of Lip Motion Features for Speaker Identification and Speech-Reading," *IEEE Transactions on Image Processing*, Vol. 15, No. 10, pp. 2879-2891, 2006.
- H.E. Cetingul, E. Erzin, Y. Yemez, A. M. Tekalp, "Multimodal Speaker/Speech Recognition using Lip Motion, Lip Texture and Audio," *Signal Processing (Elsevier)*, Special Issue on Multimodal Human-Computer Interfaces, Vol. 86, No. 12, pp. 3549-3558, 2006.
- C. B. Akgül, B. Sankur, Y. Yemez, F. Schmitt, "Density-Based 3D Shape Descriptors", *EURASIP Journal on Applied Signal Processing*, Special Issue on Search and Retrieval of 3D Content and Associated Knowledge Extraction and Propagation, Vol. 2007, Article ID 32503, 16 pages, 2007.

- Y. Sahillioğlu and Y. Yemez, "A Surface Deformation Framework for 3D Shape Recovery," *Lecture Notes in Computer Science (MCRS'06)*, Vol. 4105, pp. 570-577, 2006.
- C. B. Akgül, B. Sankur, F. Schmitt and Y. Yemez, "Density-Based Shape Descriptors for 3D Object Retrieval," *Lecture Notes in Computer Science (MCRS'06)*, Vol. 4105, pp. 322-329, 2006.
- Y. Yemez and F. Schmitt, "Multilevel Representation and Transmission of Real Objects with Progressive Octree Particles," *IEEE Trans. on Visualization and Computer Graphics*, Vol. 9, No. 4, pp. 551-569, October 2003.
- Y. Yemez and F. Schmitt, "3D reconstruction of real objects with high resolution shape and texture," *Image and Vision Computing*, Vol. 22, No. 13, pp. 1137-1153, 2004.
- E. Erzin, Y. Yemez, A. M. Tekalp, "Multimodal speaker identification using an adaptive classifier cascade based on modality reliability," *IEEE Transactions on Multimedia*, Vol. 7, No. 5, pp. 840- 852, 2005.
- E. Erzin, Y. Yemez, A. M. Tekalp, A. Erçil, H. Erdoğan, H. Abut, "Multimodal Person Identification for Human Vehicle Interaction," *IEEE Multimedia*, Vol.13 , No. 2 , pp. 18-31, April, 2006.
- Y. Yemez, B. Sankur, E. Anarim, "A quadratic motion-based object-oriented video codec", *Signal Processing: Image Communication*, Vol. 15, No. 9, pp. 729-766, 2000.
- T. Aydin, Y. Yemez, E. Anarim, B. Sankur, "Multidirectional and multiscale edge detection via m-band wavelet transform", *IEEE Trans. on Image Processing*, Vol. 5, No. 9, pp. 1370-1376, September 1996.
- Y. Yemez, E. Anarim, and Y. Istefanopulos, "Causal and semicausal AR image model identification using EM algorithm", *IEEE Trans. on Image Processing*, Vol. 2, No. 1, pp. 513-518, October 1993.

Book chapter

- E. Erzin, Y. Yemez, A. M. Tekalp, *DSP in mobile and vehicular systems*, Chapter: 16, "Joint Audio-Video Processing for Robust Biometric Speaker Identification in Car," Kluwer Academic Publishers, May 2004.

Conference papers

- M.E. Sargin, O. Aran, A. Karpov, F. Ofli, Y. Yasinnik, S. Wilson, E. Erzin, Y. Yemez and A.M. Tekalp "Combined Gesture-Speech Analysis and Speech Driven Gesture Synthesis," *IEEE Int. Conf. on Multimedia Expo ICME'06*, Toronto, 2006.
- M.E. Sargin, E. Erzin, Y. Yemez and A.M. Tekalp, "Multimodal Speaker Identification using Canonical Correlation Analysis," *ICASSP'06*, vol. I, pp. 613-616, May, Toulouse, France, 2006.
- C. B. Akgül, B. Sankur, Y. Yemez, F. Schmitt, "A Framework for Histogram-Induced 3D Descriptors", *Proc. of the 14th European Signal Processing Conference (EUSIPCO'06)*, Florence, Italy, September 4-8, 2006.
- Y. Sahillioğlu and Y. Yemez, "A Surface Deformation Framework for 3D Shape Recovery," *Lecture Notes in Computer Science (MCRS'06)*, Vol. 4105, pp. 570-577, 2006.
- C. B. Akgül, B. Sankur, F. Schmitt and Y. Yemez, "Density-Based Shape Descriptors for 3D Object Retrieval," *Lecture Notes in Computer Science (MCRS'06)*, Vol. 4105, pp. 322-329, 2006.
- H. Dutagaci, B. Sankur, Y. Yemez, "A comparison of data representation types, features types and fusion techniques for 3D face biometry", *14th European Signal Processing Conference EUSIPCO'06*, Florence, Italy, September 2006.
- H. Dutagaci, B. Sankur, Y. Yemez, "3D Face recognition by projection-based features", *SPIE Electronic Imaging Conference: Security, Steganography, and Watermarking of Multimedia Contents VIII*, pp. 15-19 January 2006, San Jose, USA.
- M.E. Sargin, E. Erzin, Y. Yemez, A.M. Tekalp, A.T. Erdem " Speech Driven 3D Head Gesture

Synthesis," IEEE 14th Signal Processing and Communications Applications (SIU), Antalya, Turkey, April 2006.

- H. Dutagaci, B. Sankur, Y. Yemez, "3D Face Recognition", IEEE 14th Signal Processing and Communications Applications (SIU), Antalya, Turkey, April 2006.

- C. B. Akgül, B. Sankur, F. Schmitt, Y. Yemez, "A New Framework for 3D Shape Descriptors", IEEE 14th Signal Processing and Communications Applications (SIU), Antalya, Turkey, April 2006.

- Y. Sahillioglu, Y. Yemez, V. Skala, "3D Shape Recovery and Tracking from Multi-Camera Video Sequences via Surface Deformation", IEEE 14th Signal Processing and Communications Applications (SIU), Antalya, Turkey, April 2006.

- H. Dutağacı, B. Sankur, Y. Yemez, "Transform-based Methods for Indexing and Retrieval of 3D Objects", *Proceedings of Int. Conf. on 3D Digital Imaging and Modeling 3DIM*, Ottawa, Canada, October 2005.

- M.E. Sargin, E. Erzin, Y. Yemez, A.M. Tekalp "Lip Feature Extraction based on Audio-Visual Correlation," *EUSIPCO 2005*, Antalya, Turkey.

- B. Tari, Y. Yemez, Ö. Özkasap, R. Civanlar, " Progressive View-Dependent Transmission of 3D Models over Lossy Networks ", *EUSIPCO-2005*, Antalya, Turkey.

- H.E. Cetingul, Y. Yemez, E. Erzin, A. M. Tekalp "Robust Lip-Motion Features For Speaker Identification," *IEEE Int. Conf. on Acoustic, Speech and Signal Processing*, Philadelphia, March 2005.

- H.E. Cetingul, E. Erzin, Y. Yemez, A. M. Tekalp "Use of Lip Information for Robust Speaker Identification and Speech Recognition," *Biennial on DSP for In-Vehicle and Mobile Systems*, Sesimbra, Portugal, September 2-3, 2005.

- C. B. Akgül, B. Sankur, F. Schmitt, Y. Yemez, "3D Object Matching via Multivariate Shape Distributions", *IEEE 13th Signal Processing and Communications Applications (SIU)*, Kayseri, Turkey, May 2005.

- H. Dutağacı, B. Sankur, Y. Yemez, "3B Nesnelerin Endekslenmesi Ve Erişimi İçin Dönüşüm Tabanlı Yöntemler," *IEEE 13th Signal Processing and Communications Applications (SIU)*, Kayseri, Turkey, May 2005.

- M. E. Sargin, Y. Yemez, E. Erzin, A. M. Tekalp "Görsel-İşitsel İlintiye Dayalı Dudak Öznitelik Çıkarımı," *IEEE 13th Signal Processing and Communications Applications (SIU)*, Kayseri, Turkey, May 2005.

- E. Çetingül, Y. Yemez, E. Erzin, A. M. Tekalp "Konuşmacı Tanıma İçin Karşılaştırmalı Dudak Devinim Analizi," *IEEE 13th Signal Processing and Communications Applications (SIU)*, Kayseri, Turkey, May 2005.

- E. Çetingül, Y. Yemez, E. Erzin, A. M. Tekalp, "Discriminative Lip-Motion Features for Biometric Speaker Identification", *IEEE Int. Conf. on Image Process. ICIP'2004*, Singapore, 2004.

- E. Çetingül, E. Erzin, Y. Yemez, and A. M. Tekalp, "On Optimal Selection of Lip-Motion Features for Speaker Identification", *IEEE International Workshop on Multimedia Signal Processing (MMSP04)*, September 2004, Siena, Italy.

- E. Erzin, Y. Yemez, A. Murat Tekalp, "Adaptive Classifier Cascade for Multimodal Speaker Identification," in *INTERSPEECH 2004 – ICSLP*, Korea.

- E. Erzin, Y. Yemez, A. M. Tekalp, "Multimodal Audio-Visual Speaker Identification," *Special Workshop in MAUI (SWIM): Lectures by Masters in Speech Processing*, Maui, Hawaii, January 12-14, 2004.

- E. Çetingül, Y. Yemez, E. Erzin, and A. M. Tekalp, "The Use of Lip-Motion For Biometric Speaker Identification", 12th IEEE Conference on Signal Processing, Communications and Applications (SIU04), April 2004, Kuşadası, Aydın, Turkey.

- A. Kanak, E. Erzin, Y. Yemez and A. M. Tekalp, "Joint Audio-Video Processing for Robust Biometric Speaker Identification in Car," *Workshop on DSP in Mobile and Vehicular Systems*, Nagoya, Japan, April 3-4, 2003.
- Y. Yemez and F. Schmitt, "3D progressive compression with octree particles," *Proceedings of VMV'2002 Vision, Modeling and Visualization*, pp. 139-146, Erlangen, Germany, November 2002.
- Y. Yemez, A. Kanak, E. Erzin, and A. M. Tekalp, "Multimodal speaker identification with audio-video processing," *IEEE Int. Conf. on Image Process. ICIP'03*, Barcelona, Spain, September 2003.
- A. Kanak, E. Erzin, Y. Yemez and A. M. Tekalp, "Joint Audio-Video Processing for Biometric Speaker Identification," *Int. Conf. on IEEE Acoustic, Speech and Signal Processing*, Hong Kong, China, April 2003.
- C. Hernandez and Y. Yemez and F. Schmitt, "3D Reconstruction of Real Objects from silhouettes and stereo," *Pattern Recognition and Computer Vision Colloquium*, Prague, Czech Republic, 2001.
- Y. Yemez and F. Schmitt, "Modélisation Progressive Multiniveaux d'Objets 3D par particules," *RFIA'2000, 12ème Congrès Francophone AFRIF-AFIA de Reconnaissance des Formes et Intelligence Artificielle*, Paris, France, February 2000.
- F. Schmitt and Y. Yemez, "3D color object reconstruction from 2D image sequences," *IEEE Int. Conf. on Image Process. ICIP'99*, pp. 102-106, Kobe, Japan, October 1999.
- Y. Yemez and F. Schmitt, "Progressive 3D meshes from octree particles," *Proceedings of Int. Conf. on 3D Digital Imaging and Modeling 3DIM'99*, pp. 290-299, Ottawa, Canada, October 1999.
- Mülâyim, A.Y., Yemez, Y., Schmitt, F., Atalay, V. "Rotation axis extraction of a turn table viewed by a fixed camera ", *Vision Modelling and Visualisation VMV'99*, Erlangen, Germany, November 17-19, 1999.
- Y. Yemez, B. Sankur, E. Anarim, "An object-oriented video codec based on region growing motion segmentation", *IEEE Int. Conf. on Image Process. ICIP'97*, pp. 444-447, U.S.A., November 1997.
- Y. Yemez, B. Sankur, E. Anarim, "Region growing motion segmentation and estimation in object-oriented video coding", *IEEE Int. Conf. on Image Process. ICIP'96*, Vol.2, pp. 521-524, Lausanne-Switzerland, September 1996.
- Y. Yemez, T. Aydin, B. Sankur, E. Anarim, "A new approach to 3-D face modeling", *European Conf. on Circuit Theory and Design ECCTD'95*, pp. 343-346, Istanbul, Turkey, August, 1995.
- T. Aydin, Y. Yemez, B. Sankur, E. Anarim, and O. Alkin, "Use of M-band wavelet transform for multidimensional and multiscale edge detection", *Int. Conf. on IEEE Acoustic, Speech and Signal Processing*, pp. V.17-V.20, Australia, April 1994.
- E. Anarim, Y. Yemez, and Y. Istefanopulos, "Restoration and identification of images in DFT domain using EM algorithm", *European Conf. on Circuit Theory and Design ECCTD'93*, Davos, Switzerland, August 1993.
- T. Aydin, Y. Yemez, B. Sankur, E. Anarim, O. Alkin, "Edge detection by M-band wavelet transform", *8'th IEEE Conf. on Multidimensional Signal Processing*, pp. 192-193, France, Sept. 1993.