

**PROFESSOR YUCEL ALTUNBASAK
SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY**

I. EMPLOYMENT

Professor, August 1999 - present
School of Electrical and Computer Engineering
Georgia Institute of Technology, Atlanta, GA

Founder and president, Jan. 2009 – present
HQVideo, LLC

Co-founder and president, Jan. 2009 – present
InfoBay, LLC

Senior advisor, March 2005 - March 2008
Vestel Elektronik Inc., Manisa, Turkey

Network Faculty Member, 2003-2007 summers
Sabanci University, Istanbul, Turkey

Part-owner and technical advisor, June 2001 - January 2004
EGT Inc., Atlanta, GA

Member of technical staff, July 1996 - August 1999
Hewlett-Packard Laboratories, Palo Alto, CA

Consulting Assistant Professor, 1998-1999
Department of Electrical Engineering,
Stanford University, Palo Alto, CA

Part-time Instructor, 1998-1999
Department of Electrical Engineering,
San Jose State University, San Jose, CA

Research Assistant, September 1993 - June 1996
University of Rochester, Rochester, NY

Teaching Assistant, September 1992 - August 1993
University of Rochester, Rochester, NY

II. EARNED DEGREES

Ph.D., Electrical and Computer Engineering, University of Rochester, Rochester, NY, 1996
M.S., Electrical and Computer Engineering, University of Rochester, Rochester, NY, 1993
B.S., Electrical Engineering, Bilkent University, Ankara, Turkey, 1992

HONORS AND AWARDS

- Received **NSF CAREER award** (2002)
- Co-author for the article that received the “**most cited paper award**” of the Journal of Signal Processing: Image Communication, 2008
- Co-author for a conference paper that received the “**best student paper award**” at ICIP 2003
- Co-author for a conference paper that received the “**best student paper award**” at VCIP 2006
- Co-author for a conference paper that received the “**second place award**” at EMBS’04 Design Competition
- Received “**Outstanding Junior Faculty Award**” at the School of Electrical and Computer Engineering, Georgia Tech (2003)
- Received a recognition award citing his contributions in the area of super-resolution in HP in 1999
- Ranked **fifth** out of approximately 700,000 high school graduates in the National University Entrance Examination of Turkey (1987)
- Ranked first in the class (1987) at Izmir High School of Science (Izmir Fen Lisesi), the best performing high school according to the National University Entrance Examinations at the time of attendance

III. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

Leadership Activities

- **Technical program chair**, *IEEE Int. Conf. on Image Processing (ICIP’06)*, Atlanta, GA, 2006.
- “Advanced Signal Processing for Communications” **Symposia co-chair**, *IEEE International Conference on Communications (ICC’03)*, May 11-15, 2003
- Multimedia Networking Technical **Track Chair**, *IEEE International Conference on Multimedia and Expo (ICME’04)*, June 27-30, 2004
- Multimedia Networking Technical **Track Chair**, *IEEE International Conference on Multimedia and Expo (ICME’03)*, July 6-9, 2003
- **Panel sessions chair**, *International Conference on Information Technology: Research and Education (ITRE’03)*, August 10-13, 2003
- **Special session chair**, Video Networking, *IEEE Int. Conf. on Image Processing (ICIP’04)*, October 10, 2004
- **Session chair**, Super-resolution, *IEEE Int. Conf. on Image Processing (ICIP’08)*, October 13, 2008
- **Session chair**, Multimedia Analysis, *IEEE Int. Conf. Acoust. Speech Sign. Proc. (ICASSP’08)*, March 30–April 4, 2008
- **Session chair**, Interpolation and Superresolution III, *IEEE Int. Conf. on Image Processing (ICIP’07)*, September 19, 2007
- **Session chair**, Video Coding, *IEEE Int. Conf. Acoust. Speech Sign. Proc. (ICASSP’05)*, March 18-23, 2005

- **Session chair**, Video Coding, *IEEE Int. Conf. on Image Processing (ICIP'04)*, October 10, 2004
- **Session chair**, Multimedia Streaming, *IEEE Int. Conf. on Communications (ICC'04)*, June 15, 2004
- **Session chair**, Video Coding, *IEEE Int. Conf. Acoust. Speech Sign. Proc. (ICASSP'04)*, May 17-22, 2004
- **Session chair**, Video Transcoding, *IEEE Int. Conf. on Image Processing (ICIP'03)*, September 15, 2003
- **Session chair**, Wireless Multimedia I, *IEEE Int. Conf. Multimedia and Expo (ICME)*, Baltimore, MD, July 7, 2003
- **Session chair**, Multimedia I, *IEEE Int. Conf. on Communications (ICC'03)*, May 12, 2003
- **Session chair**, Wireless Networking, *IEEE Int. Conf. on Communications (ICC'03)*, May 14, 2003
- **Session chair**, Error Concealment, *IEEE Int. Conf. on Image Processing (ICIP'02)*, Sept. 22-25, 2002
- **Session chair**, Image/Video Coding, *IEEE Int. Conf. Acoust. Speech Sign. Proc. (ICASSP'02)*, May 10-14, 2002
- **Session chair**, Digital Video Processing, *32nd Asilomar Conference on Signals, Systems, and Computers*, Nov. 1-4, 1998

Editorial Activities

- **Associate Editor**, *IEEE Transactions on Image Processing*, 6/1/2002-6/1/2005
- **Associate Editor**, *IEEE Transactions on Signal Processing*, 7/31/2003-7/31/2005
- **Area Editor**, *Signal Processing: Image Communications*, 1/1/2001-1/1/2007
- **Associate Editor**, *Circuits, Systems, and Signal Processing*, 6/21/2000-5/1/2007
- **Guest Editor**, *EURASIP Image Communications* Special Issue on "Recent Advances in Wireless Video," 2004
- **Guest Editor**, *EURASIP Image Communications* Special Issue on "Video Networking," 2005
- **Guest Editor**, *IEEE Journal of Selected Topics in Signal Processing* special issue on "Network-Aware Multimedia Processing and Communications," 2007
- **Guest Editor**, *IEEE Signal Processing Magazine* special issue on "Immersive Communications," 2009
- **Guest Editor**, *IEEE Signal Processing Magazine* special issue on "Spatio-temporal interpolation and resolution enhancement," 2009
- Panelist and proposal reviewer for NSF (June 2001, Feb. 2003, May 2003, Nov. 2004, Sept. 2006, January 2007, May 2008)
- Panelist and proposal reviewer for ARO (March 2001, April 2004, May 2004, March 2006)

Membership Activities

- **Advisory Board**, Department of Electrical Engineering, Bilkent University, Ankara, Turkey, 2003-present
- **Vice-president** - North America, *IEEE Communications Society Multimedia Communications Technical Committee*, 1/2004-12/2006

- **Elected member**, *IEEE Signal Processing Society Image and Multi-dimensional Signal Processing (IMDSP) Technical Committee*, 5/2002-5/2008
- **Founding elected member**, *IEEE Signal Processing Society Bio-Imaging and Signal Processing Technical Committee*, 5/2004-present
- **Elected member**, *IEEE Signal Processing Society Multimedia Signal Processing (MMSP) Technical Committee*, 1/2006-1/2009
- **Steering committee member**, the 16th International Packet Video Workshop, 2007
- Senior Member, IEEE, 2002
- Member, International Standardization Organization (ISO), X3L3.1 (MPEG), 1995-1998. Served as HP's principal representative in ISO/ X3L3.1. Submitted two MPEG-4 core-experiment descriptions and three MPEG-4 documents to ISO/IEC JTC1/SC29/WG11. Some of the algorithms are accepted for inclusion in the MPEG-4 Visual Working Draft (as part of SNHC) in October 1997.
- Area chair, *ICIP'08*, San Diego, CA, October 2008
- Technical program committee member, *MMSP'08*, Cairns, Queensland, Australia, October 2008
- Technical program committee member, *ICIP'08*, San Diego, CA, October 2008
- Technical program committee member, *ICASSP'08*, Las Vegas, NV, March 2008
- Technical program committee member, *ACM Workshop on Mobile Video*, Augsburg, Germany, September 2007
- Technical program committee member, *MMSP'07*, Crete, Greece, October 2007
- Technical program committee member, *ICASSP'07*, Honolulu, Hawaii, April 2007
- Technical program committee member, *ICIP'07*, San Antonio, TX, September 2007
- Technical program committee member, *VCIP'07*, San Jose, CA, January 2007
- Technical program committee member, *CCNC'07*, Las Vegas, NV, January 2007
- Technical program committee member, *ICASSP'06*, Toulouse, France, May 2006
- Technical program committee member, *MobiMedia'06*, Alghero, Sardinia, Italy, September 2006
- Technical program committee member, *MMSP'06*, Victoria, BC, Canada, October 2006
- Technical program committee member, *ICIP'05*, Genova, Italy 2005
- Technical program committee member, *ITRE'05*, Hsinchhu, Taiwan 2005
- Technical program committee member, *EUSIPCO'05*, Antalya, Turkey 2005
- Technical program committee member, *Wirelesscom 2005*, Hawaii, 2005
- Technical program committee member, *ICASSP'05*, Philadelphia, PA, March 2005
- Technical program committee member, *ICIP'04*, Singapore, October 2004
- Technical program committee member, *ICME'04*, Taipei, Taiwan, June 2004
- Technical program committee member, *ITRE'04*, London, England, June 2004
- Technical program committee member, *ICASSP'04*, Montreal, Canada, May 2004
- Technical program committee member, *ICC'04*, Paris, France, June 2004
- Technical program committee member, *ICIP'03*, Barcelona, Spain, September 2003
- Technical program committee member, *ICME'03*, July 2003, Baltimore, MD
- Technical program committee member, *ICASSP'03*, Hong Kong, China, April 2003
- Technical program committee member, *Wireless Personal Multimedia Communications (WPMC'02)*
- Technical program committee member, *IEEE Int. Conf. on Image Processing (ICIP'02)*, Rochester, NY, September, 2002
- Technical program committee member, *ICIP'01*, Thessaloniki, Greece, October 2001

- Technical program committee member, *IEEE International Symposium on Circuits and Systems (ISCAS'02)*, Scottsdale, Arizona, May 2002
- Technical program committee member, *ICASSP'01*, Salt Lake City, Utah, May 2001

B. CAMPUS CONTRIBUTIONS

- Member, Center for Signal and Image Processing, 1999-present
- Member, Georgia Tech Broadband Institute, 2001-present
- Member, ECE Student Faculty Committee, 1999-2000
- Member, ECE Graduate Student Recruiting Committee, 2000-2002
- Member, ECE Seminar Committee, 2002-2004
- Member, ECE Undergraduate Curriculum Committee, 2004-2006
- Member, ECE Faculty Hiring, 2006-2009
- Served in the 60 thesis and proposal defense committees

IV. GRANTS AND CONTRACTS

A. AS PRINCIPAL AND CO-PRINCIPAL INVESTIGATOR

30 grants totaling more than \$4.5 million

V. PATENTS AND OTHERS INTELLECTUAL PROPERTIES

A. PATENTS LICENSED

- 1) A. M. Tekalp, Y. Altunbasak, and G. Bozdagi, "*Video compression system using a dense motion vector field and a triangular patch mesh overlay model*," US patent no. 5,654,771, issued Aug. 8, 1997. Licensed by University of Rochester.
- 2) Y. Altunbasak, B. Gunturk, and R. M. Mersereau, "*Resolution enhancement and artifact reduction for MPEG video*," filed with the Patent Office on April 26, 2002. Licensed to EGT Inc. by Georgia Tech Office of Technology Licensing.
- 3) Y. Altunbasak and H. Kim, "*Very low complexity rate-distortion optimal macroblock mode selection and motion estimation for MPEG-like encoders*," filed with the USPTO on Nov. 12, 2003. Licensed to EGT Inc. by Georgia Tech Office of Technology Licensing.

B. PATENTS ISSUES

- 1) A. M. Tekalp, Y. Altunbasak, and G. Bozdagi, "*Video compression system using a dense motion vector field and a triangular patch mesh overlay model*," Patent no. 5,654,771, issued Aug. 8, 1997.
- 2) Y. Altunbasak and A. J. Patti, "*Correcting distortion in an imaging system*," EU patent no. 99308405.2-1241, issued January 11, 2000.
- 3) M. Elad, Y. Altunbasak, A. J. Patti, D. Shaked, Y. Hel-Or, and D. Taubman, "*Apparatus and method of increasing scanner resolution*," EU patent no. 99308489.6-2002, issued Feb. 8, 2000.
- 4) A. Patti and Y. Altunbasak, "*Method for generated resolution enhanced still images from compressed video data*," US patent no. 6,304,682, issued Oct. 16, 2001.

- 5) Y. Altunbasak and H. Zhang, “*Object-based parsing and indexing of compressed video streams*,” US patent no. 6,389,168, issued May 14, 2002.
- 6) Y. Altunbasak and H. Zhang, “*System and method for automatically detecting shot boundary and key frame from a compressed video data*,” US patent no. 6,393,054, issued May 21, 2002.
- 7) P. Lopez, J. Williamson, and Y. Altunbasak, “*Image scanner with optical wave-guide and enhanced optical sampling rate*,” US patent no. 6,414,760, issued July 2, 2002.
- 8) Y. Altunbasak and D. Taubman, “*Apparatus and method of increasing scanner resolution*,” US patent no. 6,459,823, issued October 1, 2002.
- 9) Y. Altunbasak and A. J. Patti, “*Correcting distortion in an imaging system using parametric motion estimation*,” US patent no. 6,597,816, issued July 22, 2003.
- 10) Y. Altunbasak and A. Drukarev, “*Image mosaicing system and method adapted to mass-market hand-held digital cameras*,” US patent no. 6,834,128, issued Dec 21, 2004.
- 11) J. Kim, R. M. Mersereau, and Y. Altunbasak, “*Methods and systems for multiple substream unequal error protection and error concealment*,” US patent no. 7,117,423, issued Oct. 3, 2006.
- 12) A. Patti and Y. Altunbasak “*System and method for estimating motion between images*,” US patent no. 7,120,195, issued Oct. 10, 2006.
- 13) T. Akgun, B. Uyar and Y. Altunbasak, “*Methods and apparatus for processing of a digital image*,” EU patent no. 07251410.2-1522, issued June 05, 2007.
- 14) Y. Altunbasak, B. Gunturk, and R. M. Mersereau, “*Video enhancement using multiple frame techniques*,” US patent no. 7215831, issued May 8, 2007.
- 15) N. Kamaci, Y. Altunbasak, and R. M. Mersereau, “*Cauchy-distribution based coding system and method*,” US patent no. 7418147, issued August 26, 2008.

C. PATENTS PENDING

- 16) N. Jayant, C. Ith, J. Monaco, Y. Altunbasak, J. Hartung, R. Sivakumar, S. Krishnamachari, and S. John, “*Efficient compression and transport of video over a network*,” filed with the USPTO July 1, 2003.
- 17) Y. Altunbasak and H. Kim, “*Signal processing system*,” filed with the USPTO on Nov. 12, 2003.
- 18) Y. Altunbasak and M. U. Demircin, “*Switching and simultaneous usage of 802.11a and 802.11g technologies for video streaming*,” filed at the US Patent Office, October 5, 2006.
- 19) T. Arici and Y. Altunbasak, “*Methods and apparatus for adjusting a chrominance signal*,” filed with both US and EU Patent Offices, March 15, 2006.
- 20) Y. Altunbasak, T. Akgun, and T. Arici, “*Method and apparatus for adjusting the resolution of a digital image*,” filed with both US and EU Patent Offices, January 26, 2006.
- 21) Y. Altunbasak, T. Arici, and T. Akgun, “*Method and apparatus for adjusting the contrast of an image (global contrast enhancement)*,” filed with both US and EU Patent Offices, January 26, 2006.
- 22) T. Arici, T. Akgun and Y. Altunbasak, “*Method and apparatus for adjusting the contrast of an input image (local contrast enhancement)*,” filed with both US and EU Patent Offices, January 26, 2006.
- 23) T. Akgun, B. Uyar, Y. Altunbasak, “*Methods and apparatus for processing of a digital image*,” filed with both US and EU Patent Offices, June 26, 2006.
- 24) T. Arici and Y. Altunbasak, “*A method and apparatus for digital image compression artifact reduction*”, filed with both US and EU Patent Offices, July 20, 2006.

- 25) T. Akgun, O. G. Sezer, and Y. Altunbasak, "*Training-based resolution enhancement for digital images*," filed with both US and EU Patent Offices, January 29, 2007.
- 26) H. Ozdemir and Y. Altunbasak, "*Method for skin color reproduction on rg-chromaticity plane*," filed with both US and EU Patent Offices, April 12, 2007.

D. PROVISIONAL PATENT APPLICATIONS

- 1) Y. Altunbasak and A. J. Patti, "*A video codec which maximizes both compression efficiency and still frame print quality*," invention disclosure filed with HP, July 1997.
- 2) Y. Altunbasak and A. J. Patti, "*A fast method of combining low-resolution images to create a higher resolution image via motion compensated filtering*," invention disclosure filed with HP, Nov. 1997.
- 3) Y. Altunbasak, "*Object-Oriented Content-Creation Tools for Electronic Publishing and Multimedia Applications*," invention disclosure filed with HP, Oct. 1997
- 4) Y. Altunbasak, "*Edge adaptive demosaicing methods*," invention disclosure filed with HP, May 1999.
- 5) Y. Altunbasak, "*Improved image demosaicing method for digital cameras*," invention disclosure filed with HP, May 1999.
- 6) Y. Altunbasak and Y. C. Lee, "*Multi-frame error concealment methods for transform-coded video*," (GTRC ID 2509) filed with the USPTO on June 27, 2001.
- 7) B. Gunturk and Y. Altunbasak, "*Wavelet-based color plane interpolation for digital cameras*," (GTRC ID 2508) filed with the USPTO on June 27, 2001.
- 8) B. K. Gunturk, A. U. Batur, Y. Altunbasak, M. H. Hayes III, and R. M. Mersereau, "*Super-resolution for face recognition*," (GTRC ID 2653) filed with the USPTO on May 3, 2002.
- 9) Y. C. Lee and Y. Altunbasak, "*A MDC-aware congestion control for multimedia communications using path diversity scheme over packet networks*," (GTRC ID 2678) filed with the USPTO on May 14, 2002.
- 10) Y. C. Lee and Y. Altunbasak, "*Error protection and transport schemes for layered and multiple description coded video streaming over error-prone networks*," (GTRC ID 2738) filed with the USPTO on August 26, 2002.
- 11) Y. Altunbasak, O. Ergun, and A. C. Begen, "*Multimedia transport protocol: Optimal multi-path selection for multiple description encoded streaming*," (GTRC ID 2739), filed with the USPTO on August 27, 2002.
- 12) A. C. Begen and Y. Altunbasak, "*Rate-distortion optimized packet scheduling for media streaming in media delivery networks with server diversity*," (GTRC ID 2846), filed with the USPTO on February 14, 2003.
- 13) H. Kim and Y. Altunbasak, "*Fast coding mode selection for digital video coding*," (GTRC ID 3098), filed with the USPTO on April 12, 2004.
- 14) A. C. Begen and Y. Altunbasak, "*Proxy support for interactive audiovisual communication over networks with large delays*," (GTRC ID 3169), filed with the USPTO on May 3, 2004.
- 15) A. C. Begen and Y. Altunbasak, "*An efficient methodology for forecasting packet arrival times in real-time streaming applications*," (GTRC ID 3319), filed with the USPTO on November 22, 2004
- 16) T. Akgun and Y. Altunbasak, "*A technique for extracting and utilizing side information optimized for multi-frame video processing*," (GTRC ID 4022), filed with the USPTO on November 15, 2006.
- 17) Y. Altunbasak and F. Fekri, "*Online information services architecture*," (GTRC ID 4397), filed with the USPTO on Jan 15, 2008.

E. ISO/IEC JTC1/SC29 PROPOSALS

- 1) Y. Altunbasak, "Description of MPEG-4 Core Experiment P6: Triangle-based motion compensation," (with Dr. Hibi, Sharp Inc., Japan and Prof. A. M. Tekalp, University of Rochester).
- 2) Y. Altunbasak, "Description of MPEG-4 Core Experiment M2: Object-scalable, content-based 2-D mesh design and tracking for object-based video coding," (with Dr. Hibi, Sharp Labs, Japan and Prof. A. M. Tekalp, University of Rochester)
- 3) A. M. Tekalp and Y. Altunbasak, "Object-scalable, content-based 2-D mesh design and tracking for object-based video coding," ISO/IEC JTC1/SC29/WG11, MPEG 95/M0444, Dallas, TX, November 1995.
- 4) A. M. Tekalp and Y. Altunbasak, "An H.263 compatible triangle-based motion compensation," ISO/IEC JTC1/SC29/WG11, MPEG 96/M0629, Munich, Germany, January 1996.
- 5) A. M. Tekalp and Y. Altunbasak, "An H.263 compatible triangle-based motion compensation: further results," ISO/IEC JTC1/SC29/WG11, MPEG 96/M0875, Trieste, Italy, March 1996.

VI. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

Post-doctoral Researchers and Visiting Scientists

- 1) Dr. Jun-Hee HEU
Area of research: Immersive communications
Time period: 6/09-6/10
- 2) Dr. Mustafa Parlak, Sabanci University
Area of research: Social networking
Time period: 5/08-5/09
- 3) Prof. Sangho Ahn, Inje University
Area of research: FPGA-based video frame-rate conversion
Time period: 8/08-8/09

Past Ph.D. Students

- 1) Ghassan Ibrahim AlRegib
Thesis title: *Delay-constrained 3-d graphics streaming over lossy networks*
Doctoral dissertation defense date: June 27, 2003
Position and place of first employment: **Assistant professor** at School of Electrical and Computer Engineering at Georgia Tech (Savannah Campus)
- 2) Joohee H. Kim (Co-supervisor with Prof. Russell M. Mersereau)
Thesis title: *Error-resilient video streaming over lossy channels*
Doctoral dissertation defense date: July 2, 2003
Place of first employment: Samsung, Korea
Position and current place of employment: **Assistant professor** at Inha University, Korea

- 3) Bahadir K. Gunturk
Thesis title: *Multi-frame information fusion for image and video enhancement*
Doctoral dissertation defense date: August 15, 2003
Position and place of first employment: **Assistant professor** at Louisiana State University
- 4) Yen-Chi Lee
Thesis title: *Error-resilient video streaming over lossy networks*
Doctoral dissertation defense date: September 29, 2003
Place of first employment: Nokia Research Center, TX
Current place of employment: Qualcomm, San Diego, CA
- 5) Taehyun Kim (Co-supervisor with Dr. Mustafa Ammar)
Thesis title: *Scalable video streaming over the Internet*
Doctoral dissertation defense date: November 10, 2004
Place of first employment: Freescale, Dallas, TX
- 6) Israfil Bahceci
Thesis title: *Multiple-input multiple-output wireless systems: Coding, distributed detection and antenna selection*
Doctoral dissertation defense date: August 24, 2005
Current place of employment: Nortel, Ottawa, ON, Canada
- 7) Ali Cengiz Begen
Thesis title: *Enhancing the multimedia experience in emerging networks*
Doctoral dissertation defense date: November 10, 2006
Place of first employment: Cisco, San Jose, CA
- 8) Hyung-Joon Kim
Thesis title: *Low-complexity mode selection for rate-distortion optimal video coding*
Doctoral dissertation defense date: March 28, 2007
Place of first employment: Texas Instruments DSP Research Center, Dallas, TX
- 9) Toygar Akgun
Research topic: *Resolution enhancement using natural image statistics and multiple aliased observations*
Doctoral dissertation defense date: December 5, 2007
Place of first employment: NVIDIA, San Jose, CA
- 10) Mehmet Umut Demircin
Research topic: *Robust video streaming over time-varying wireless networks*
Doctoral dissertation defense date: May 29, 2008
Place of first employment: Texas Instruments DSP Research Center, Dallas, TX
- 11) Zafer Aydin
Research topic: *Bayesian modeling of non-local interactions for protein beta-sheets*
Doctoral dissertation defense date: September 3, 2008
Place of first employment: U. of Washington, Seattle, WA

- 12) Tarik Arici
Research topic: *Single and multi-frame video quality enhancement*
Doctoral dissertation defense date: March 26, 2009
Place of first employment: NVIDIA, San Jose, CA

Current Ph.D. Students

- 13) Seydou Nourou BA (co-supervisor with Dr. G.T. Zhou)
Research topic: *Efficient digital baseband distortion linearization for 3G wireless handsets*
Defended the dissertation proposal on May 15, 2008
Passed the preliminary exam in November 2002
Expected graduation date: Fall 2008
Advising period: January 2005 – present
- 14) Salih Dikbas
Research topic: *Video frame rate conversion*
Passed the preliminary exam in November 2002
Expected graduation date: Summer 2009
Advising period: January 2005 – present
- 15) Aytac Azgin
Research topic: *Error control and transport protocols for IPTV*
Passed the preliminary exam in November 2002
Expected graduation date: Summer 2010
Advising period: January 2004 – present
- 16) Ibrahim Pekkucuksen
Research topic: *Video signal processing*
Passed the preliminary exam in spring 2006
Expected graduation date: Summer 2011
Advising period: August 2005 – present
- 17) Osman Gokhan Sezer
Research topic: *Next generation video coding*
Passed the preliminary exam in spring 2006
Expected graduation date: Summer 2011
Advising period: August 2006 – present
- 18) Michael Santoro
Research topic: *Video enhancement*
Passed the preliminary exam in spring 2007
Expected graduation date: Summer 2011
Advising period: January 2008 – present
- 19) Alireza Khoshgoftar Monfared
Research topic: *IPTV*
Passed the preliminary exam in fall 2008
Expected graduation date: Summer 2012
Advising period: August 2008 (starting Fall'08)

- 20) Abdul Ghayoor Rana
 Research topic: *Video processing*
 Passed the preliminary exam in fall 2008
 Expected graduation date: Summer 2011
 Advising period: January 2008 – present
- 21) Chu Meh Cu
 Research topic: *Video processing*
 Passed the preliminary exam in spring 2007
 Expected graduation date: Summer 2012
 Advising period: January 2008 – present
- 22) Ali Payami (new)
- 23) Jong Sun Kim (new)

VII. SCHOLARLY ACCOMPLISHMENTS

A. BOOK CHAPTERS

- 1) B. Gunturk and Y. Altunbasak, "Video demosaicking filters," *The Circuits and Filters Handbook, Third Edition*, CRC Press, 2009.
- 2) Y. Altunbasak, "Image Interpolation," *Digital Signal Processing: Video, Speech, Audio, and Associated Standards*, Taylor & Francis Group, to be published in 2009/2010.

B. REFEREED PUBLICATIONS

Refereed Journal Publications

- 1) A. M. Tekalp, Y. Altunbasak, and G. Bozdagi, "3-D versus 2-D knowledge based coding," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 7, no. 2, pp. 391-397, April 1997.
- 2) Y. Altunbasak and A. M. Tekalp, "Closed-form connectivity-preserving solutions for motion compensation using 2-D meshes," *IEEE Transactions on Image Processing*, vol. 6, no. 9, pp. 1255-1269, September 1997.
- 3) Y. Altunbasak and A. M. Tekalp, "Occlusion-adaptive, content-based 2-D mesh design and tracking for object-based video coding," *IEEE Transactions on Image Processing*, vol. 6, no. 9, pp. 1270-1280, September 1997.
- 4) D. Borshukov, G. Bozdagi, Y. Altunbasak, and A. M. Tekalp, "Improved motion segmentation by multi-stage affine parameter clustering," *IEEE Transactions on Image Processing*, vol. 6, no. 11, pp. 1591-1594, November 1997.
- 5) Y. Altunbasak, P. E. Eren, and A. M. Tekalp, "Region-based affine motion segmentation using color information," *Journal of Graphical Models and Image Processing*, vol. 60, no. 1, pp. 13-23, January 1998.
- 6) Y. Altunbasak and A. M. Tekalp, "A hybrid video codec with block-based and mesh-based motion compensation modes," *International Journal of Imaging Systems and Technology*, vol. 9, no. 4, pp. 248-256, August 1998.
- 7) A. J. Patti and Y. Altunbasak, "Artifact reduction for POCS-based super-resolution with edge adaptive regularization and higher-order interpolants," *IEEE Transactions on Image Processing*, vol. 10, no. 1, pp. 179-186, January 2001.

- 8) Y. Altunbasak, A. J. Patti, and R. M. Mersereau, "Super-resolution still and video reconstruction from MPEG coded video," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 12, no. 4, pp. 217-227, April 2002.
- 9) B. Gunturk, Y. Altunbasak, and R. M. Mersereau, "A multi-frame blocking artifact reduction method for transform coded video," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 12, no. 4, pp. 269-276, April 2002.
- 10) B. Gunturk, Y. Altunbasak, and R. M. Mersereau, "Multiframe resolution-enhancement methods for compressed video," *IEEE Signal Processing Letters*, vol. 9, no. 6, pp. 170-174, June 2002.
- 11) B. Gunturk, Y. Altunbasak, and R. M. Mersereau, "Color plane interpolation using alternating projections," *IEEE Transactions on Image Processing*, vol. 11, no. 9, pp. 997-1013, September 2002.
- 12) Y. C. Lee, Y. Altunbasak, and R. M. Mersereau, "Multi-frame error concealment for MPEG-coded video delivery over error-prone networks," *IEEE Transactions on Image Processing*, vol. 11, no. 11, pp. 1314-1331, November 2002.
- 13) J. Kim, R. M. Mersereau, and Y. Altunbasak, "Error-resilient image and video transmission over the Internet using unequal error protection," *IEEE Transactions on Image Processing*, vol. 12, no. 2, pp. 121-131, February 2003.
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