PROF. DR. YÜCEL ALTUNBAŞAK

I. KISA BİYOGRAFİ

TOBB Ekonomi ve Teknoloji Üniversitesi Rektörü Prof. Dr. Yücel Altunbaşak 1971 yılında Kayseri'de doğdu. İlk ve orta öğrenimini Kayseri'de tamamladıktan sonra İzmir Fen Lisesinde eğitimine devam etti. Lisans eğitimini ise Bilkent Üniversitesi Elektrik-Elektronik Mühendisliği Bölümü'nde burslu olarak tamamlayan Altunbaşak, lisans mezuniyeti sonrası, 1992 yılında master ve doktora eğitimi için ABD'ye gitti. Mezuniyet sonrası, 1996 yılında, Hewlett-Packard'ın Silikon Vadisi'ndeki Palo Alto Araştırma Laboratuvarlarında araştırmacı mühendis olarak çalışan Altunbaşak, aynı zamanda Stanford Üniversitesi'nde danışman yardımcı doçent olarak görev yaptı.

Silikon Vadisi'nde üç sene çalıştıktan sonra akademiye geçen Altunbaşak, 1999 yılında, Georgia Institute of Technology'de (GATECH) yardımcı doçent olarak işe başladı. 10 sene GATECH'de görev yapan Altunbaşak, bir yandan da endüstri ile çok yakın bir çalışma yürüttü. Uydu ve kablo TV şirketlerine MPEG video sıkıştırıcı cihazı üreten bir firma Prof. Dr. Altunbaşak'ın geliştirdiği ürün prototipini lisanslayarak başarılı bir şekilde satışına başladı. 2003-2006 yaz aylarında Sabancı Üniversitesi'nin Network Öğretim Üyesi kadrosunda çalıştı. 2006 yılında ise Vestel ile çalışmaya başlayan Altunbaşak, üniversite-sanayi işbirliği çerçevesinde, LCD TV'ler için TÜSİAD Jüri Özel Ödülüne layık görülen "Pixellence" markalı görüntü işleme projesinin başlatılmasına öncülük etmiş ve bu projeyi geliştiren takıma liderlik yapmıştır. Uluslararası alanda Sayısal İşaret İşleme üzerine yaptığı akademik çalışmaları ile adından söz ettiren Altunbaşak, Ağustos 2009'dan bu yana TOBB ETÜ'nün rektörlüğünü yürütmektedir.

Sanayi ve devlet tarafından desteklenen projelerde 19 doktora öğrencisi ile birlikte çalışan Dr. Altunbaşak'ın araştırmaları bugüne kadar 170'den fazla makale ve 40'dan fazla patent/patent başvurusu ile sonuçlandı. Bazı buluşları hâlihazırda lisanslanmış ve çeşitli ürünlere girmiştir. Kurucu ve danışman olarak yeni kurulan teknoloji şirketleriyle aktif olarak ilgilenmektedir. Alanının prestijli dergilerinde editörlük ve mesleki örgütlerde başkanlık yapan Altunbaşak'ın çok sayıda akademik onur, ödül ve taltifleri bulunmaktadır.

II. EMPLOYMENT

Rector, July 2009 - present
TOBB University of Economics and Technology, Ankara, Turkey

Professor, July 2009 – present
Department of Electrical and Electronics Engineering
TOBB University of Economics and Technology, Ankara, Turkey

Professor, March 2009 – July 2009
School of Electrical and Computer Engineering
Georgia Institute of Technology, Atlanta, GA

Associate Professor, August 2004 – March 2009
School of Electrical and Computer Engineering
Georgia Institute of Technology, Atlanta, GA

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

Network Faculty Member, 2003-2007 summers
Faculty of Engineering and Natural Sciences
Sabanci University, Istanbul, Turkey

Senior advisor and shareholder, June 2001 - January 2004
EGT Inc., Atlanta, GA

Assistant Professor, August 1999 - August 2004
School of Electrical and Computer Engineering
Georgia Institute of Technology, 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

Summer Intern, 1990 and 1991Summers
Turk Telekom, Kayseri, Turkey

III. 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
High School, Izmir High School of Science, Izmir, Turkey, 1987

IV. 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 VCIP 2006
- 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 "**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)

V. 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 "Realizing the Vision of Immersive Communications", 2011
- 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)
- Regular technical reviewer for several journals:
  *IEEE Transactions on Image Processing***,** 10 papers
  IEEE Transactions on Circuits and Systems for Video Tech., 8 papers
  IEEE Transactions on Communications, 2 papers
  IEEE Signal Processing Letters, 2 papers
  IEEE Journal of Selected Areas in Communications, 2 papers
  IEEE Transactions on Multimedia, 2 papers
  Journal of Signal Processing: Image Communications, 3 papers
  IEEE Transactions on Education, 1 paper
  IEEE Transactions on Networking, 1paper

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*, Baltimore, MD July 2003
- Technical program committee member, *ICASSP'03*, Hong Kong, China, April 2003
- Technical program committee member, *Wireless Personal Multimedia Communications (WPMC'02)*, Honolulu, Hawaii, October 2002
- Technical program committee member, *IEEE Int. Conf. on Image Processing (ICIP'02)*, Rochester, NY, September 2002
- Technical program committee member, *IEEE International Symposium on Circuits and Systems (ISCAS'02)*, Scottsdale, Arizona, May 2002
- Technical program committee member, *ICIP'01,* Thessaloniki, Greece, October 2001
- Technical program committee member, *ICASSP'01*, Salt Lake City, Utah, May 2001

VI. SCHOLARLY ACCOMPLISHMENTS

A. BOOK CHAPTERS

1) B. Gunturk and Y. Altunbasak, "Video demosaicking filters", *The Circuits and Filters Handbook, Third Edition*, CRC Press. 2008
2) Y. Altunbasak, "Interpolation", *The Digital Signal Processing Handbook, Second Edition*, CRC Press, 2009.
3) O. G. Sezer and Y. Altunbasak, "Super-resolution Reconstruction of Multi-channel Images", *Super-Resolution Imaging*, CRC Press, 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.
14) Y. Altunbasak, R. M. Mersereau, and A. J. Patti, "A fast parametric motion estimation algorithm with illumination and lens distortion correction", *IEEE Transactions on Image Processing*, vol. 12, no. 4, pp. 395-409, April 2003.
15) B. K. Gunturk, A. U. Batur, Y. Altunbasak, M. H. Hayes III, and R. M. Mersereau, "Eigenface-domain super-resolution for face recognition", *IEEE Transactions on Image Processing*, vol. 12, no. 5, pp. 597-607, May 2003.
16) Y. C. Lee, J. Kim, Y. Altunbasak, and R. M. Mersereau, "Layered coding vs. multiple description coding for video over error-prone networks", *Signal Processing: Image Communication*, vol. 18 (2003), pp. 337-356, May 2003.
17) G. Al Regib, Y. Altunbasak, and R. M. Mersereau, "Hierarchical motion estimation with content-based meshes", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 13, issue 10, pp. 1000-1005, October 2003.
18) I. Bahceci, T. M. Duman, and Y. Altunbasak, "Antenna selection for multiple-antenna transmission systems: performance analysis and code construction", *IEEE Transactions on Information Theory (Special Issue on Space-Time Transmission, Reception, Coding and Signal Design)*, vol. 49, no. 10, pp. 2669-2681, October 2003.
19) Y. C. Lee, Y. Altunbasak and R. M. Mersereau, "An integrated application of multiple description transform coding and error concealment for error-resilient video streaming", *Signal Processing: Image Communication*, vol. 18 (2003), no. 10, pp. 957-970, November 2003.
20) Y. C. Lee, Y. Altunbasak, and R. M. Mersereau, "An enhanced two-stage multiple description video coder with drift reduction", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 14, no. 1, pp. 122-128, January 2004.
21) B. Gunturk, Y. Altunbasak, and R. M. Mersereau, "Super-resolution reconstruction of compressed video using transform-domain statistics", *IEEE Transactions on Image Processing*, vol. 13, no. 1, pp. 33-43, January 2004.
22) I. Akyildiz, Y. Altunbasak, F. Fekri, and R. Sivakumar, "AdaptNet: An Adaptive protocol suite for the next generation wireless internet", *IEEE Communications Magazine*, vol. 42, no. 3, pp. 128-136, March 2004.
23) J. Kim, R. M. Mersereau, and Y. Altunbasak, "A multiple-substream unequal error protection and error concealment algorithm for SPIHT-coded video bitstreams", *IEEE Transactions on Image Processing*, vol. 13, no. 12, December 2004
24) Y. Altunbasak and H. Ates, "Understanding the future of video coding", *IEEE Multimedia*, vol. 12, no. 1, Jan.-March 2005.
25) A. C. Begen, Y. Altunbasak, O. Ergun, and M. H. Ammar, "Multi-path selection for multiple description encoded video streaming over overlay networks", *Signal Processing: Image Communication*, vol. 20/1, pp. 39-60, Jan. 2005. (**The most cited paper award**)
26) B. K. Gunturk, J. Glotzbach, Y. Altunbasak, R. W. Schafer, and R. M. Mersereau, "Demosaicking: Color filter array interpolation", *IEEE Signal Processing Magazine Special Issue on Color Image Processing*, vol. 22, issue 1, pp. 44-54, Jan. 2005
27) G. Al Regib, Y. Altunbasak, and R. M. Mersereau, "Bit allocation for joint source and channel coding of progressively compressed 3-D models", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, no. 2, pp. 256-268, Feb. 2005.

28) G. AlRegib, Y. Altunbasak, and J. Rossignac, "Error-resilient transmission of 3-D models", *ACM Trans. on Graphics*, vol. 24(2), pp. 182-208, April 2005.
29) Y. C. Lee, Y. Altunbasak, and R. M. Mersereau, "A coordinated application of multiple description scalar quantization and error concealment for error resilient MPEG video streaming", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, issue 4, pp. 457–468, April 2005.
30) H. Kim, N. Kamaci, and Y. Altunbasak, "Low complexity rate-distortion optimal macroblock mode selection and motion estimation for MPEG-like encoders", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, issue 7, pp. 823-834, July 2005.
31) J. Kim, R. M. Mersereau, and Y. Altunbasak, "Distributed video streaming using multiple description coding and unequal error protection", *IEEE Transactions on Image Processing*, volume 14, issue 7, pp. 849–861, July 2005.
32) G. Al Regib, Y. Altunbasak, and J. Rossignac, "An unequal error protection method for progressively transmitted 3-D models", *IEEE Transactions on Multimedia*, vol. 7, issue 4, pp. 766–776, Aug. 2005.
33) N. Kamaci, Y. Altunbasak, and R. M. Mersereau, "Frame bit allocation for the H.264/AVC video coder via Cauchy-density-based rate and distortion models", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, issue 8, pp. 994-1006, Aug. 2005.
34) A. C. Begen and Y. Altunbasak, "Proxy-assisted interactive-video services over networks with large delays", *EURASIP Signal Processing: Image Communication, Special Issue on Video Networking*, vol. 20/8, pp. 755-772, Sept. 2005
35) T. Akgun, Y. Altunbasak, and R. M. Mersereau, "Super-resolution reconstruction of hyperspectral images", *IEEE Transactions on Image Processing*, vol. 14, issue 11, pp. 1860-1875, November 2005.
36) G. Al Regib and Y. Altunbasak, "3TP: An application-layer protocol for streaming 3-D models", *IEEE Transactions on Multimedia*, volume 7, issue 6, pp. 1149–1156, December 2005.
37) I. Bahceci, Y. Altunbasak, and T. M. Duman, "Space-time coding over correlated fading channels with antenna selection", *IEEE Transactions on Wireless Communications*, vol. 5, issue 1, pp. 34–39, Jan. 2006.
38) I. Bahceci, Y. Altunbasak, and T. M. Duman, "A turbo coded multiple description system for multiple antennas", *IEEE Transactions on Communications*, vol. 54, issue 2, pp. 187–191, Feb. 2006.
39) Z. Aydin, Y. Altunbasak, and M. Borodovsky, "Protein secondary structure prediction for a single-sequence using hidden semi-Markov models", *BMC Bioinformatics 2006*, 7:178 (30 Mar 2006).
40) Z. Aydin and Y. Altunbasak, "A signal processing application in genomic research: protein secondary structure prediction", *IEEE Signal Processing Magazine*, volume 23, issue 4, pp. 128-131, July 2006.
41) T. Arici, T. Akgun, and Y. Altunbasak, "A prediction error based hypothesis testing method for sensor data acquisition", *ACM Transactions on Sensor Networks*, vol. 2, no. 4, pp. 529–556, November 2006.
42) A. C. Begen and Y. Altunbasak, "An adaptive media-aware retransmission timeout estimation method for low-delay packet video", *IEEE Transactions on Multimedia*, volume 9, issue 2, pp. 332–347, Feb. 2007.
43) Z. Aydin, H. Erdogan, and Y. Altunbasak, "Bayesian protein secondary structure prediction with near-optimal segmentations", *IEEE Transactions on Signal Processing*, volume 55, issue 7, pp. 3512–3525, July 2007.

44) H. Seferoglu, O. Gurbuz, O. Ercetin, and Y. Altunbasak, "Wireless transport algorithms for real-time video streaming", *EURASIP Signal Processing: Image Communication*, vol. 22-6, pp. 529-542, July 2007.
45) M. Gevrekci, B. K. Gunturk and Y. Altunbasak, "Restoration of Bayer-sampled image sequences", *Oxford the Computer Journal 2007*; doi: 10.1093/comjnl/bxm041 (http://comjnl.oxfordjournals.org/cgi/content/abstract/bxm041v1)
46) H. F. Ates and Y. Altunbasak, "Rate-Distortion and complexity optimized motion estimation for H.264 video coding", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 18, issue 2, pp. 159–171, Feb. 2008.
47) M. U. Demircin, P. Beek and Y. Altunbasak, "Delay-constrained and R-D optimized transrating for high-definition video streaming over WLANs", *IEEE Transactions on Multimedia*, vol.10, no.6, pp.1155-1168, Oct. 2008.
48) Z. Aydin Z, Y. Altunbasak, H. Erdogan, "Bayesian models and algorithms for protein beta-sheet prediction", *IEEE-ACM Transactions on Computational Biology and Bioinformatics*, vol. 8, issue 2, pp. 395–409, Mar.-Apr 2011.
49) T. Arici, S. Dikbas and Y. Altunbasak, "Global a histogram modification framework and its application for image contrast enhancement", *IEEE Transactions on Image Processing*, vol. 18, issue 9, pp. 1921-1935, Sept. 2009.
50) S. Dikbas S, T. Arici T, and Y. Altunbasak , "Fast motion estimation with interpolation-free sub-sample accuracy", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 20, issue 7, pp. 1047–1051, July 2010.

Refereed Conference Publications

1) Y. Altunbasak, A. M. Tekalp, and G. Bozdagi, "Simultaneous motion-disparity estimation and segmentation from stereo", *IEEE Int. Conf. Image Proc.*, vol. 3, pp. 73-77, Austin, TX, Nov. 1994.
2) Y. Altunbasak, A. M. Tekalp, and G. Bozdagi, "Simultaneous stereo-motion fusion and 3-D motion tracking", *IEEE Int. Conf. Acoust. Speech Sign. Proc.*, vol. 4, pp. 2277-2280, Detroit, MI, May 1995.
3) A. M. Tekalp, Y. Altunbasak, and G. Bozdagi, "Three-dimensional versus two-dimensional knowledge based coding", *SPIE Visual Comm. and Image Proc. Conf*., vol. 2501, pt. 1, pp. 250-255, Taipei, Taiwan, May 1995.
4) Y. Altunbasak, A. M. Tekalp, and G. Bozdagi, "Two-dimensional object-based coding using a content-based mesh and affine motion parameterization", *IEEE Int. Conf. Image Proc.*, vol. 2, pp. 394-397, Washington, D.C., Oct. 1995.
5) Y. Altunbasak and A. M. Tekalp, "Content-based mesh generation for very low bit-rate video coding", *Symposium on Multimedia Communications and Video Coding*, New York City, NY, Oct. 1995.
6) G. Borshukov, G. Bozdagi, Y. Altunbasak, and A. M. Tekalp, "Multi-stage affine parameter clustering for improved motion segmentation", *SPIE/IS&T Symp. Electronic Imaging Sci. & Tech.*, vol. 2666, pp. 146-153, San Jose, CA, Jan. 1996.
7) Y. Altunbasak and A. M. Tekalp, "Very low bit-rate video coding using object-based mesh design and tracking", *SPIE/IS&T Symp. Electronic Imaging Sci. & Tech*., vol. 2668, pp. 28-35, San Jose, CA, Jan. 1996.
8) Y. Altunbasak and A. M. Tekalp, "Closed-form solution for polygon based node motion estimation with 2-D meshes", *Visual Comm. Image Proc*., vol. 2727, pt. 1, pp. 356-367, Orlando, FL, 17-20 March 1996.
9) Y. Altunbasak and A. M. Tekalp, (abstract only) "Scene adaptive bit-rate control for object-based coding", *IEEE Signal Proc. Soc. Ninth Workshop on Image and Multidim. Sign. Proc. Workshop*, Belize City, Belize, March 1996.

10) Y. Altunbasak and A. M. Tekalp, "A complete system for video coding based on triangular mesh", *Picture Coding Symposium '96*, Melbourne, Australia, March 1996.
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C. OTHER PUBLICATIONS

Technical Reports

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D. PRESENTATIONS

Invited Seminars

1) Y. Altunbasak, "*Object-scalable, content-based video for visual communication and multimedia*", IBM Thomas J. Watson Research Center, Yorktown Heights, NY, March 1996.
2) Y. Altunbasak, "*Object-based video for low bit-rate video coding*", David Sarnoff Research Center, NJ, March 1996.
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4) Y. Altunbasak, "*Content-based video for very low bit-rate video coding*", Sharp Laboratories of America, Camas, WA, March 1996.
5) Y. Altunbasak, "*Object-scalable, content-based video for visual communication and multimedia"*, Siemens Corporate Research, NJ, March 1996.
6) Y. Altunbasak, *"Resolution enhancement for MPEG video"*, Stanford University, Palo Alto, CA, April 1999.
7) Y. Altunbasak, *"Resolution enhancement and mosaicing for MPEG video"*, Georgia Institute of Technology, GA, June 1999.
8) Y. Altunbasak, *"Overview of video compression methods"*, D. E. Shaw & Co.**,** New York, NY, April 2000.
9) Y. Altunbasak, "*Yucel Altunbasak seminar series"*, Sabanci University, Istanbul, Turkey, June 2003 (6 seminars).
10) Y. Altunbasak, "*Bio-signal processing"*, Koc University, Istanbul, Turkey, June 2003.
11) Y. Altunbasak, "*Wireless video delivery*", Sharp Laboratories of America, Camas, WA, 2004.
12) Y. Altunbasak, "*Digital video processing*", Vestel, Manisa, Turkey, March 2005.
13) Y. Altunbasak, "*On the Science and Technology Policies and the University System in Turkey"*, Prime Ministry of Republic of Turkey. (Presented to the prime minister and other ministers), August 2005.
14) Y. Altunbasak, "*Bayesian protein secondary structure prediction and function estimation"*, Arizona State University, AZ, February 2006.

E. OTHER SCHOLARLY ACCOMPLISHMENTS

Licensed Patents and Patent Applications

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.

Patents Issued

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.

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.

Provisional Patent Applications

27) 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.
28) 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.
29) Y. Altunbasak, "*Object-Oriented Content-Creation Tools for Electronic Publishing and Multimedia Applications*", invention disclosure filed with HP, Oct. 1997
30) Y. Altunbasak, "*Edge adaptive demosaicing methods*", invention disclosure filed with HP, May 1999.
31) Y. Altunbasak, "*Improved image demosaicing method for digital cameras*", invention disclosure filed with HP, May 1999.
32) 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.
33) B. Gunturk and Y. Altunbasak, "*Wavelet-based color plane interpolation for digital cameras*", (GTRC ID 2508) filed with the USPTO on June 27, 2001.
34) 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.
35) 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.
36) 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.

37) 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.
38) 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.
39) H. Kim and Y. Altunbasak, *"Fast coding mode selection for digital video coding*", (GTRC ID 3098), filed with the USPTO on April 12, 2004.
40) 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.
41) 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
42) 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.
43) Y. Altunbasak and F. Fekri, *"Online information services architecture"*, (GTRC ID 4397), filed with the USPTO on Jan 15, 2008.

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.

VII. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

Post-doctoral Researchers and Visiting Scientists

1) Dr. Mustafa Parlak, Sabanci University
   Area of research: Social networking
   Time period: 8/08-8/09

2) 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 current place of employment: **Associate professor** at School of Electrical and Computer Engineering at Georgia Tech

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 current place of employment: **Associate 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, CA

13) Seydou Nourou BA (co-supervisor with Dr. G.T. Zhou)
Research topic: *Efficient digital baseband distortion linearization for 3G wireless handsets*
Doctoral dissertation defense date: March 2010
Place of first employment: Texas Instruments, Dallas, TX

14) Ibrahim Pekkucuksen
Research topic: *Edge Directed Resolution Enhancement and Demosaicing*
Doctoral dissertation defense date: Aug. 9, 2011
Place of first employment: Texas Instruments, Dallas, TX

15) Salih Dikbas
Research topic: *Edge A Low-Complexity Approach for Motion-Compensated Video Frame Rate Up-Conversion*
Doctoral dissertation defense date: Aug. 10, 2011
Place of first employment: Texas Instruments, Dallas, TX

16) Osman Gokhan Sezer
Research topic: *Data-Driven Transform Optimization for Next-Generation Multimedia Applications*
Doctoral dissertation defense date: Aug. 15, 2011
Place of first employment: Texas Instruments, Dallas, TX

Current Ph.D. Students

17) 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

18) Michael Santoro
Research topic: *Video enhancement*

Passed the preliminary exam in spring 2007
Advising period: January 2008 – present

19) Alireza Khoshgoftar Monfared
Research topic: *IPTV*
Passed the preliminary exam in fall 2008
Advising period: August 2008 (starting fall'08)

VIII. GRANTS AND CONTRACTS

A. AS PRINCIPAL AND CO-PRINCIPAL INVESTIGATOR

1) **Title:** "CAREER: Error correction and concealment for wireless video: An integrated and adaptive approach"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: NSF CAREER
Contract Period: 08/02-08/07
Amount Funded: $347,820
Status: Completed

2) **Title:** "An adaptive protocol suite for the next generation wireless Internet"
Principal and co-principal investigator(s): I. F. Akyildiz, Y. Altunbasak, R. Sivakumar, and F. Fekri
Organization: NSF
Contract Period: 08/01-08/05
Amount Funded: $1,355,070
Status: Completed

3) **Title:** "Multiple description coding for wireless systems with multiple transmit and receive antennas"
Principal and co-principal investigator(s): Y. Altunbasak and R. M. Mersereau
Organization: NSF
Contract Period: 07/01-07/04
Amount Funded: $416,789
Status: Completed

4) **Title:** "Super-resolution still and video reconstruction from MPEG coded video"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: ONR
Contract Period: 06/01-05/04
Amount Funded: $294,069
Status: Completed

5) **Title:** "ITR/SI(SPS)+AP+SY: High precision video with applications to visual communications and image enhancement"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: NSF-ITR
Contract Period: 08/01-08/04
Amount Funded: $210,000
Status: Completed

6) **Title:** "Error-resilient video streaming"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia
Contract Period: 07/03-07/04
Amount Funded: $35,000
Status: Completed

7) **Title:** "Image and video transport protocols"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia
Contract Period: 07/03-07/04
Amount Funded: $23,000
Status: Completed

8) **Title:** "Error-resilient video streaming"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia
Contract Period: 07/02-07/03
Amount Funded: $35,000
Status: Completed

9) **Title:** "Protocols and algorithms for error-resilient, JPEG-2000-coded image transmission"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia
Contract Period: 07/02-07/03
Amount Funded: $35,000
Status: Completed

10) **Title:** "Rate-distortion optimal MPEG-2 video coding"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Georgia Tech Broadband Institute and EGT, Inc.
Contract Period: 05/02-08/02
Amount Funded: $5,000
Status: Completed

11) **Title:** "A real-time multimedia transport protocol"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Georgia Tech Broadband Institute
Contract Period: 07/01-07/02
Amount Funded: $26,000
Status: Completed

12) **Title:** "Error-resilient video streaming"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia
Contract Period: 07/01-07/02
Amount Funded: $55,000
Status: Completed

13) **Title:** "Protocols and algorithms for error-resilient, JPEG-2000-coded image transmission"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia and Barco
Contract Period: 07/01-07/02
Amount Funded: $55,000
Status: Completed

14) **Title:** "Home video portal design"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Georgia Tech Broadband Institute
Contract Period: 07/00-07/01
Amount Funded: $35,000
Status: Completed

15) **Title:** "Error-resilient video streaming"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Yamacraw Initiative, State of Georgia
Contract Period: 07/00-07/01
Amount Funded: $55,000
Status: Completed

16) **Title:** "US-Turkey collaborative research"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: NSF-INT
Contract Period: 03/04-07/07
Amount Funded: $25,500
Status: Completed

17) **Title:** "Rate-distortion optimized on-demand media streaming in multipoint-to-point networks"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Georgia Tech Broadband Institute
Contract Period: 07/04-07/05
Amount Funded: $30,000
Status: Completed

18) **Title:** "Enhancing the multimedia experience in emerging networks"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: NSF-SPS
Contract Period: 08/04-08/07
Amount Funded: $180,000
Status: Completed

19) **Title:** "Robust video communication over home networks"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Sharp Labs of America
Contract Period: 01/05-01/06
Amount Funded: $35,000 (Gift)
Status: Completed

20) **Title:** "Understanding the book of life: Bayesian protein secondary structure analysis and its application to protein function prediction"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: NSF
Contract Period: 08/05-08/08
Amount Funded: $173,000
Status: Active

21) **Title:** "Video quality enhancement"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Vestel
Contract Period: 05/05-05/06
Amount Funded: $70,000 (Gift)
Status: Completed

22) **Title:** "Video delivery over cable networks"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Comcast
Contract Period: 01/06-07/06
Amount Funded: $30,000
Status: Completed

23) **Title:** "Robust video communication over home networks"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Sharp Labs of America
Contract Period: 01/06-07/06
Amount Funded: $18,000 (Gift)
Status: Completed

24) **Title:** "Quality-of-Service and Security of Voice-over IP (VoIP): An End-to-End Approach for Multi-Network Environments"
Principal and co-principal investigator(s): Y. Altunbasak (with Mustaque Ahamad, Douglas M. Blough, Mary Ann Ingram, Chuanyi Ji, Wenke Lee, Henry Owen, Ragupathy Sivakumar; Mary Ann Ingram is the PI)
Organization: Georgia Tech Broadband Institute
Contract Period: 01/06-01/07
Amount Funded: $175,000 (Dr. Altunbasak's part $29,377)
Status: Completed

25) **Title:** "Video quality enhancement"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Vestel
Contract Period: 05/06-05/07
Amount Funded: $105,000 (Gift)
Status: Completed

26) **Title:** "Video quality enhancement"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Vestel
Contract Period: 05/07-05/08
Amount Funded: $105,000 (Gift)

Status: Completed

27) **Title:** "Next-generation video coding"
Principal and co-principal investigator(s): Y. Altunbasak (PI: Jim McClellan)
Organization: TI University Leadership Program
Amount Funded: 1 GRA + 1-month summer salary
Contract Period: 08/08-01/09
Status: Completed

28) **Title:** "An analytical framework for real-time IPTV error recovery policy"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: Cisco University Research Program Fund
Amount Funded: $86,641
Contract Period: 01/08-01/09
Status: Completed

29) **Title:** "Understanding the book of life: Bayesian protein secondary structure analysis and its application to protein function prediction"
Principal and co-principal investigator(s): Y. Altunbasak
Organization: NSF
Amount Funded: $198,000
Contract Period: 01/08-01/11
Status: Active