

PROFESSOR YUCEL ALTUNBASAK

I. SHORT BIO

Born in Kayseri in 1971, Professor Altunbaşak graduated from the Department of Electrical and Electronics Engineering at Bilkent University, Ankara, in 1992. After that, he studied at the Department of Electrical and Computer Engineering at the University of Rochester, New York, where he received his MS and PhD degrees.

In 1996, while employed at Hewlett-Packard's Palo Alto Laboratories in Silicon Valley, California, as a research engineer, he was appointed as a consultant assistant professor at Stanford University. After three years in Silicon Valley, he returned to academic life as assistant professor at the Georgia Institute of Technology Department of Electrical and Computer Engineering, where he received his full-professorship in 2009. Between 2009 and 2011, he served as the Rector of TOBB University of Economics and Technology in Turkey. Since August 2011, he is serving as the 9th and current President of The Scientific and Technological Council of Turkey (TUBITAK).

Professor Altunbaşak has supervised 19 PhD students and is author of more than 190 papers and 50 patents/patent applications. In addition to his academic work, Professor Altunbaşak has continuously worked in collaboration with industry. He licensed and successfully prototyped a MPEG and processing device for a satellite and cable TV company. He initiated and was the driving force behind an image processing technology called 'Pixellence', which received the Special Jury Award of the Turkish Industry and Business Association, while working as a senior advisor to the company Vestel.

Professor Altunbaşak has received numerous awards and memberships, and also he has served as editor of several leading research journals and chaired many industrial associations.

II. EMPLOYMENT

President, August 2011- present
TUBITAK, Ankara, Turkey

Rector, July 2009 – August 2011
TOBB University of Economics and Technology, Ankara, Turkey

Professor, July 2009 – August 2011
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 1991 Summers
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

- Fellow, IEEE, 2012
- 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 2003
- Received “**Outstanding Junior Faculty Award**” at the School of Electrical and Computer Engineering, Georgia Tech (2003)
- Received **NSF CAREER award** (2002)
- 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. BOARD MEMBERSHIP ACTIVITIES

- **International Advisory Board (IAB)**, King Abdulaziz University, Jeddah, Saudi Arabia, 2012-present
- **Board Member**, ROKETSAN, Ankara, Turkey, 2011-present
- **Board Member**, Vocational Qualification Council, Ankara, Turkey, 2010-2012
- **Advisory Board**, Department of Electrical Engineering, Bilkent University, Ankara, Turkey, 2003-2011
- **Board Member**, The Inter-university Council (UAK), Ankara, Turkey, 2011-present
- **Board Member**, KOSGEB, Ankara, Turkey, 2011-present

VI. TECHNICAL LEADERSHIP ACTIVITIES

- **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.
- **Technical program chair**, *IEEE Int. Conf. on Image Processing (ICIP’06)*, Atlanta, GA, 2006.
- **Session chair**, Video Coding, *IEEE Int. Conf. Acoust. Speech Sign. Proc. (ICASSP’05)*, March 18-23, 2005.
- **Multimedia Networking Technical Track Chair**, *IEEE International Conference on Multimedia and Expo (ICME’04)*, June 27-30, 2004.
- **Special session chair**, Video Networking, *IEEE Int. Conf. on Image Processing (ICIP’04)*, October 10, 2004.
- **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.
- “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'03)*, July 6-9, 2003.
- **Panel sessions chair**, *International Conference on Information Technology: Research and Education (ITRE'03)*, August 10-13, 2003.
- **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.

VII. EDITORIAL ACTIVITIES

- **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)
- **Guest Editor**, *IEEE Journal of Selected Topics in Signal Processing* special issue on “Network-Aware Multimedia Processing and Communications”, 2007
- **Associate Editor**, *Circuits, Systems, and Signal Processing*, 6/21/2000-5/1/2007
- **Area Editor**, *Signal Processing: Image Communications*, 1/1/2001-1/1/2007
- Panelist and proposal reviewer for ARO (March 2001, April 2004, May 2004, March 2006)
- **Guest Editor**, *EURASIP Image Communications* Special Issue on “Video Networking”, 2005
- **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
- **Guest Editor**, *EURASIP Image Communications* Special Issue on “Recent Advances in Wireless Video”, 2004
- 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*, 1 paper

VIII. TECHNICAL MEMBERSHIP ACTIVITIES

- **Elected member**, *IEEE Signal Processing Society Multimedia Signal Processing (MMSP) Technical Committee*, 1/2006-1/2009
- 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
- **Elected member**, *IEEE Signal Processing Society Image and Multi-dimensional Signal Processing (IMDSP) Technical Committee*, 5/2002-5/2008
- 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
- **Steering committee member**, the 16th International Packet Video Workshop, 2007
- **Vice-president** - North America, *IEEE Communications Society Multimedia Communications Technical Committee*, 1/2004-12/2006
- 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
- **Founding elected member**, *IEEE Signal Processing Society Bio-Imaging and Signal Processing Technical Committee*, 5/2004-present
- 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
- Senior Member, IEEE, 2002
- Technical program committee member, *ICIP'01*, Thessaloniki, Greece, October 2001

- Technical program committee member, *ICASSP'01*, Salt Lake City, Utah, May 2001
- 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.

IX. BOOK CHAPTERS

- 1) O. G. Sezer and Y. Altunbasak, "Super-resolution Reconstruction of Multi-channel Images", *Super-Resolution Imaging*, CRC Press, 2010.
- 2) Y. Altunbasak, "Interpolation", *The Digital Signal Processing Handbook, Second Edition*, CRC Press, 2009.
- 3) B. Gunturk and Y. Altunbasak, "Video demosaicking filters", *The Circuits and Filters Handbook, Third Edition*, CRC Press. 2008

X. 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, “Rate-distortion based real-time wireless video streaming”, *Signal Processing: Image Communication*, vol. 22, issue 6, pp. 529–542, July 2007.

- 45) 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.
- 46) 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>)
- 47) 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.
- 48) 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.
- 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.
- 51) Z. Aydin, Y. Altunbasak and 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, March-April 2011.
- 52) I. Pekkucuksen and Y. Altunbasak, "Edge strength filter based color filter array interpolation", *IEEE Transactions on Image Processing*, vol. 21, issue 1, pp. 393-397, January 2012.
- 53) S. Dikbas and Y. Altunbasak, "Novel true-motion estimation algorithm and its application to motion-compensated temporal frame interpolation", *IEEE Transactions on Image Processing*, vol. 22, issue 8, pp. 2931-45, August 2013 (Epub. October 04, 2012).
- 54) I. Pekkucuksen and Y. Altunbasak, "Multiscale gradients-based color filter array interpolation", *IEEE Transactions on Image Processing*, vol. 22, issue 1, pp. 157-165, April 2013.
- 55) M. Santaro, G. AlRegib and Y. Altunbasak, "Joint framework for motion validity and estimation using block overlap", *IEEE Transactions on Image Processing*, vol. 22, issue 4, pp. 1608-1617, April 2013.

XI. REFEREED CONFERENCE PUBLICATIONS

- 1) A. M. Tekalp, M. I. Sezan, and Y. Altunbasak, "Evaluation of 3-D motion and structure estimation algorithms for model based video compression", *47th Annual Conference (ICPS) The Physics and Chemistry of Imaging Systems of the Society-for-Imaging-Science-and-Technology*, Rochester, NY, May 15-20, 1994.
- 2) 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.
- 3) 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.
- 4) 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.

- 5) 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.
- 6) 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.
- 7) 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.
- 8) 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.
- 9) 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.
- 10) 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.
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- 132) M. Santaro, G. AlRegib, and Y. Altunbasak, "Misalignment correction for depth estimation using stereoscopic 3-D cameras", *14th IEEE International Workshop on Multimedia Signal Processing (MMSP)*, Banff, Canada, September 17-19, 2012.

XII. TECHNICAL REPORTS

- 1) M. Elad, Y. Hel-Or, and Y. Altunbasak, "SURE: Super-resolution enhancements for scanners: Implementation issues", *HPL Technical Report*, Feb. 1998.

- 2) Y. Altunbasak, A. J. Patti, and O. King, "On the global parametric motion estimation with illumination and geometric lens distortion correction", *HPL Technical Report*, Oct. 1998.
- 3) Y. Altunbasak, "CAST: Camera scanning technology", *HPL Technical Report*, July 1999.
- 4) Y. Altunbasak, A. Azgin, and G. AlRegib, "Studying the Performance of Cooperative Delivery Techniques to Support Video-on-Demand Service in IPTV Networks", *MSL Technical Report*, May 2013.

XIII. 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.
- 3) Y. Altunbasak, "*Object-based video for visual communication and multimedia*", Hewlett-Packard Research Laboratories, Palo Alto, CA, March 1996.
- 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.

XIV. PATENTS

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.
- 16) Y. Altunbasak and H. Kim, “*Signal processing system*”, US patent no. 7440502, issued October 21, 2008.
- 17) T. Arici and Y. Altunbasak, “*Methods and apparatus for adjusting a chrominance signal*”, US patent no. 7738044, issued June 15, 2010.
- 18) Y. Altunbasak, T. Akgun, and T. Arici, “*Method and apparatus for adjusting the resolution of a digital image*”, US patent no. 7738739, issued June 15, 2010.
- 19) Y. Altunbasak, T. Arici, and T. Akgun, “*Method and apparatus for adjusting the contrast of an image (global contrast enhancement)*”, US patent no. 7738698, issued June 15, 2010.

- 20) T. Arici, T. Akgun and Y. Altunbasak, “*Method and apparatus for adjusting the contrast of an input image (local contrast enhancement)*”, US patent no. 7602447, issued October 13, 2009.
- 21) T. Akgun, B. Uyar, Y. Altunbasak, “*Methods and apparatus for processing of a digital image*”, US patent no. 8077987, issued December 13, 2011.
- 22) 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*”, US patent no. 7936818, issued May 3, 2011.
- 23) H. Ozdemir and Y. Altunbasak, “*Method of and apparatus for detecting and adjusting colour values of skin tone pixels*”, US Patent no. 8194978, issued June 5, 2012.
- 24) T. Arici and Y. Altunbasak, “*Method and apparatus for adjusting the contrast of an input image*”, US Patent no. 8131104, issued March 6, 2012.

Patents Pending

- 25) 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.
- 26) 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.
- 27) 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.
- 28) 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.
- 29) Y. Altunbasak and F. Fekri, “*Systems and Methods for providing information services*”, filed at the US Patent Office, April 28, 2009.
- 30) H. Ozdemir and Y. Altunbasak, “*Method of and apparatus for detecting and adjusting colour values of skin tone pixels*”, filed at the US Patent Office, December 4, 2008

Provisional Patent Applications

- 31) 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.
- 32) 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.
- 33) Y. Altunbasak, “*Object-Oriented Content-Creation Tools for Electronic Publishing and Multimedia Applications*”, invention disclosure filed with HP, Oct. 1997
- 34) Y. Altunbasak, “*Edge adaptive demosaicing methods*”, invention disclosure filed with HP, May 1999.
- 35) Y. Altunbasak, “*Improved image demosaicing method for digital cameras*”, invention disclosure filed with HP, May 1999.
- 36) 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.
- 37) B. Gunturk and Y. Altunbasak, “*Wavelet-based color plane interpolation for digital cameras*”, (GTRC ID 2508) filed with the USPTO on June 27, 2001.
- 38) 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.

- 39) 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.
- 40) 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.
- 41) 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.
- 42) 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.
- 43) H. Kim and Y. Altunbasak, “*Fast coding mode selection for digital video coding*”, (GTRC ID 3098), filed with the USPTO on April 12, 2004.
- 44) 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.
- 45) 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
- 46) 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.
- 47) Y. Altunbasak and F. Fekri, “*Online information services architecture*”, (GTRC ID 4397), filed with the USPTO on Jan 15, 2008.

XV. TEACHING

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
- 17) Michael Santoro (Co-supervisor with Prof. AlRegib)
 Research topic: *Valid motion estimation for super-resolution image reconstruction*
 Doctoral dissertation defense date: Aug. 14, 2012
 Place of first employment: Pontificia Universidad Católica de Chile
- 18) Aytac Azgin (Co-supervisor with Prof. AlRegib)
 Research topic: *Error control and transport protocols for IPTV*
 Doctoral dissertation defense date: June, 2013

XVI. GRANTS AND CONTRACTS

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