

Curriculum Vitae

1. **Name - Surname: Hasan Fehmi Ates**
2. **Date of Birth: 22/12/1975**
3. **Academic Title: Assoc. Prof.**
4. **Education:**

Degree	Area	University	Year
Undergraduate	Electrical & Electronics Engineering	Bilkent University	1998
Master	Electrical Engineering	Princeton University	2000
Ph.D.	Electrical Engineering	Princeton University	2004

5. Dates of Academic Titles:

Assistant Prof. : **August 2005**
Assoc. Prof. : **29 June 2011**

6. Completed M.S. and Ph.D. Theses

6.1. M.S. Theses

- Muhammet Yazıcı, "Optimization of Integer-Pel Motion Estimation for H.264 Video Encoding on TMS 320C6416T Digital Signal Processor", 2007.
- Rifat Yazgan, "Artifact Reduction In Occluded Regions For Motion Compensated Frame Interpolation", 2008.
- Burak Çizmecci, "True Motion Estimation for Video Frame Rate Up-Conversion", 2009.
- Engin Tamer, "Wavelet Based Image Coding and Interpolation", 2009.

6.2. Ph.D. Theses

7. Publications

7.1. Papers in International Peer-reviewed Journals (SCI & SSCI & Arts and Humanities)

- H.F. Ates, E. Tamer, "Hierarchical Quantization Indexing for Wavelet and Wavelet Packet Image Coding", Signal Processing: Image Comm., Elsevier, 2010.
- M. Fatemi, H.F. Ates, R. Saleh, "Fast Algorithm Analysis and Bit-Serial Architecture Design for Sub-Pixel Motion Estimation in H.264", vol.19, no.8, pp.1665-1687, Journal of Circuits, Systems, and Computers, Dec. 2010.
- U. Bayazit, U. Konur, H.F. Ates, "3-D Mesh Geometry Compression with Set Partitioning in the Spectral Domain", IEEE Trans. Circuit Sys. Video Tech., Feb. 2010.
- H.F. Ates, M.T. Orchard, "Spherical Coding Algorithm for Wavelet Image Compression", IEEE Trans. Image Proc., vol.18, no.5, pp:1015-1024, May 2009.
- H.F. Ates, Y. Altunbasak, "Rate-distortion and complexity optimized motion estimation for H.264 video coding", IEEE Trans. Circuit Sys. Video Tech., vol.18, no.2, pp:159-171, Feb. 2008.
- H.F. Ates, M.T. Orchard, "An Adaptive Edge Model in the Wavelet Domain for Wavelet Image Coding", Signal Processing: Image Comm., Elsevier, vol.20, no.2, pp:169-185, Feb. 2005.

7.2. Papers in Other Peer-reviewed Journals

7.3. Papers Presented in International Academic Conferences and Published in Conference Proceedings

- H.F. Ates, B. Cizmeci, "Decoder side true motion estimation for very low bitrate B-frame coding", Proc. IEEE International Conference on Image Processing (ICIP'11), Brussels, Belgium, September 2011.
- B. Cizmeci, H.F. Ates, "Occlusion Aware Motion Compensation for Video Frame Rate Up-Conversion", Proc. IASTED International Conf. on Signal and Image Processing (SIP), Maui, Hawaii, August 2010.
- H.F. Ates, E. Tamer, "Wavelet-Based Image Compression By Hierarchical Quantization Indexing", Proc. European Signal Processing Conference (EUSIPCO), Glasgow, August 2009.
- M.Fatemi, H.F. Ates, R. Saleh, "A Cost-Efficient Bit-Serial Architecture for Sub-pixel Motion Estimation of H.264/AVC", Proc. IEEE International Conference on Intelligent Info. Hiding and Multimedia Signal Processing (IHMSP), Harbin, China, Aug. 2008.
- H.F. Ates, "Fast Inter-Mode Decision and Selective Quarter-Pel Refinement in H.264 Video Coding", Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Las Vegas, March-April 2008.
- U. Konur, U. Bayazit, H.F. Ates, F.S. Gurgun, "Spectral Coding of Mesh Geometry with a Hierarchical Set Partitioning Algorithm", Proc. SPIE Visual Communications and Image Processing (VCIP), San Jose, Jan. 2008.
- M. Fatemi, R. Salleh, H. F. Ates, "An Algorithm and Its Architecture for Half-pixel Variable Block Size Motion Estimation", *Proc. ICT'07*, Malezya, 2007.
- H. F. Ates, B. Kanberoglu, Y. Altunbasak, "Rate-Distortion and Complexity Joint Optimization for Fast Motion Estimation in H.264 Video Coding", *Proc. ICIP'06*, Atlanta, USA, Oct. 2006.
- S.-N. Ba, H. Ates, "Low Complexity Inter Mode Selection For H.264", *accepted to ICIP'06*, Atlanta, USA, 2006.
- H.F. Ates, M.T. Orchard, "Wavelet Image Coding Using the Spherical Representation", *Proc. IEEE International Conference on Image Processing (ICIP)*, Genova, Italy, 2005.
- S. Yalcin, H.F. Ates, and I. Hamzaoglu, "A High Performance Hardware Architecture for an SAD Reuse based Hierarchical Motion Estimation Algorithm for H.264 Video Coding", *Proc. International Conference on Field Programmable Logic and Applications*, Tampere, Finland, 2005.
- H.F. Ates, Y. Altunbasak, "SAD Reuse in Hierarchical Motion Estimation for the H.264 Encoder", *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Philadelphia, PA, USA, March 2005.
- H.F. Ates, M.T. Orchard, "A Nonlinear Image Representation in Wavelet Domain Using Complex Signals With Single Quadrant Spectrum", *Con. Rec. 37th Asilomar*, CA, Nov. 2003.
- H.F. Ates, M.T. Orchard, "Nonlinear Modeling of Wavelet Coefficients Around Edges", *Proceed. ICIP'03*, Barcelona, Sept. 2003.
- H.F. Ates, M.T. Orchard, "Image Interpolation Using Wavelet-based Contour Estimation", *Proceed. ICASSP'03, ICME'03*, Baltimore, MD, July 2003.
- H. Ates, M. Orchard, "Block Motion Estimation Using Wavelet Filtering", *Proceed. ICASSP'2000*, Istanbul, vol. 4, pp: 2079-2082, June 2000.

7.4. Internationally Published Book or Book Chapters

7.5. Papers in National Peer-reviewed Journals

7.6. Papers Presented in National Academic Conferences and Published in Conference Proceedings

- H.F. Ates, R. Gaurav "H.264 Video Kodlamada B-Çerçeveler için Kodçözücü Tarafında Aday Devinim Vektör Seçimi" (Decoder Side Candidate Motion Vector Selection For B-Frames In H.264 Video Coding), Proc. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SİU'12), Fethiye, Muğla, Nisan 2012.
- B. Çizmeçi, H.F. Ates, "Kodlayıcı Destekli Video Çerçeve Hız Artırımı" (Encoder Assisted Video Frame Rate Up-conversion), Proc. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SİU'11), Antalya, Nisan 2011.
- B. Cizmeçi, H.F. Ateş, "Video Çerçeve Hız Artırımında Kapatma Yapaylıklarının Giderilmesi", Proc. IEEE SİU, Antalya, Nisan 2009.
- H.F. Ateş, E. Tamer, "İmge Kodlaması için Dalgacık Paketlerinde Küresel Gösterim", Proc. IEEE SİU, Didim, Nisan 2008.
- H. Ateş, Y. Altunbasak, "H.264 Video Kodlamada Çerçeve Seviyesinde Karmaşıklık Kontrolü " (Frame-level Complexity Control in H.264 Video Coding), Proc. IEEE SİU, Eskişehir, Haziran 2007.
- U. Konur, U. Bayazıt, H. Ateş, F.S. Gürgen, "Göz Geometrilerinin Sıradüzensel Küme Bölüntüleme ile Spektral Kodlaması" (Spectral Coding of Mesh Geometry with a Hierarchical Set Partitioning Algorithm), Proc. IEEE SİU, Eskişehir, Haziran 2007.
- H. Ateş, M.T. Orchard, B. Kanberoğlu, "Gerçel ve Karmaşık Süzgeç Öbeklerinin Eşdalgacıklı Tasarımı" (Equiripple Design of Real and Complex Filter Banks), Proc. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SİU), Belek, Antalya, Nisan 2006.

7.7. Other Publications

- Book review: Y. Altunbasak, H.F. Ates, "Understanding the Future of Video Coding: H.264 and MPEG-4 Video Compression, by I. Richardson", IEEE Multimedia Magazine, vol.12, no.1, pp:88-89, Jan.-March 2005

7.8. International Citations

Citations to Journal Papers:

- Title: Computation of the complexity of vector quantizers by affine modeling, Author(s): Seraco Estevan P.; Gomes Jose Gabriel R. C. , Source: SIGNAL PROCESSING Volume: 91 Issue: 5 Pages: 1134-1142 DOI: 10.1016/j.sigpro.2010.10.015 Published: MAY 2011
- Title: SPEEDING-UP IMAGE ENCODING TIMES IN THE SPIHT ALGORITHM, Author(s): Valantinas Jonas; Kancelkis Deividas, Source: INFORMATION TECHNOLOGY AND CONTROL Volume: 40 Issue: 1 Pages: 7-11 Published: 2011
- Title: Morphological dilation image coding with context weights prediction, Author(s): Wu Jiaji; Paul Anand; Xing Yan; et al., Source: SIGNAL PROCESSING-IMAGE COMMUNICATION Volume: 25 Issue: 10 Pages: 717-728 DOI: 10.1016/j.image.2010.10.003 Published: NOV 2010
- Title: Improved wavelet feature extraction using kernel analysis for text independent speaker recognition, Author(s): Lung Shung-Yung, Source: DIGITAL SIGNAL PROCESSING Volume: 20 Issue: 5 Pages: 1400-1407 DOI: 10.1016/j.dsp.2009.12.004 Published: SEP 2010
- Title: Complexity scalable control for H.264 motion estimation and mode decision under energy constraints, Author(s): Gao Xuejuan; Lam Kin Man; Zhuo Li; et al., Source: SIGNAL PROCESSING Volume: 90 Issue: 8 Pages: 2468-2479 DOI: 10.1016/j.sigpro.2010.01.029 Published: AUG 2010
- Title: ROI-BASED 3D HUMAN BRAIN MAGNETIC RESONANCE IMAGES COMPRESSION USING ADAPTIVE MESH DESIGN AND REGION-BASED DISCRETE WAVELET TRANSFORM, Author(s):

Fatemizadeh Emad; Shoostari Parisa, Source: INTERNATIONAL JOURNAL OF WAVELETS MULTIREOLUTION AND INFORMATION PROCESSING Volume: 8 Issue: 3 Pages: 407-430 DOI: 10.1142/S0219691310003559 Published: MAY 2010

- Title: Real-Time H.264 Video Encoding in Software with Fast Mode Decision and Dynamic Complexity Control, Author(s): Ivanov Yuri V.; Bleakley C. J., Source: ACM TRANSACTIONS ON MULTIMEDIA COMPUTING COMMUNICATIONS AND APPLICATIONS Volume: 6 Issue: 1 Article Number: 5 DOI: 10.1145/1671954.1671959 Published: FEB 2010
- Title: 270 MHz Full HD H.264/AVC High Profile Encoder with Shared Multibank Memory-Based Fast Motion Estimation, Author(s): Lee Sukho; Park Seongmo; Park Jongwon, Source: ETRI JOURNAL Volume: 31 Issue: 6 Pages: 784-794 DOI: 10.4218/etrij.09.1209.0007 Published: DEC 2009
- Title: H.264 Based Complexity Scalable Control Algorithm under Energy Constraints, Author(s): Gao Xuejuan; Zhuo Li; Shen Lansun, Source: CHINESE JOURNAL OF ELECTRONICS Volume: 18 Issue: 4 Pages: 639-644 Published: OCT 2009
- Title: Adaptive Variable Block-Size Early Motion Estimation Termination Algorithm for H.264/AVC Video Coding Standard, Author(s): Sarwer Mohammed Golam; Wu Q. M. Jonathan, Source: IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY Volume: 19 Issue: 8 Pages: 1196-1201 DOI: 10.1109/TCSVT.2009.2020322 Published: AUG 2009
- Title: Complexity Control of H.264/AVC Based on Mode-Conditional Cost Probability Distributions, Author(s): Kannangara Chaminda Sampath; Richardson Iain E.; Bystrom Maja; et al., Source: IEEE TRANSACTIONS ON MULTIMEDIA Volume: 11 Issue: 3 Pages: 433-442 DOI: 10.1109/TMM.2009.2012937 Published: APR 2009
- Title: Image coding based on wavelet transform and uniform scalar dead zone quantizer, Author(s): Chen Jianhua; Zhang Yufeng; Shi Xinling, Source: SIGNAL PROCESSING-IMAGE COMMUNICATION Volume: 21 Issue: 7 Pages: 562-572 DOI: 10.1016/j.image.2006.03.007 Published: AUG 2006

Citations to Conference Papers:

- Title: Modeling and Evaluating Non-shared Memory CELL/BE Type Multi-core Architectures for Local Image and Video Processing, Author(s): Momcilovic Svetislav; Sousa Leonel, Source: JOURNAL OF SIGNAL PROCESSING SYSTEMS FOR SIGNAL IMAGE AND VIDEO TECHNOLOGY Volume: 62 Issue: 3 Pages: 301-318 DOI: 10.1007/s11265-010-0463-z, Published: MAR 2011
- Title: Algorithm analysis and architecture design for rate distortion optimized mode decision in high definition AVS video encoder, Author(s): Yin Hai Bing; Qi Honggang; Jia Hui Zhu; et al., Source: SIGNAL PROCESSING-IMAGE COMMUNICATION Volume: 25 Issue: 9 Pages: 633-647 DOI: 10.1016/j.image.2010.08.001 Published: OCT 2010
- Title: Flexible distribution of complexity by hybrid predictive-distributed video coding, Author(s): Slowack Juergen; Skorupa Jozef; Mys Stefaan; et al., Source: SIGNAL PROCESSING-IMAGE COMMUNICATION Volume: 25 Issue: 2 Pages: 94-110 DOI: 10.1016/j.image.2009.12.002 Published: FEB 2010
- Title: Image interpolation using MLP neural network with phase compensation of wavelet coefficients, Author(s): Kim Sang Soo; Kim Yoo Shin; Eom Il Kyu, Source: NEURAL COMPUTING & APPLICATIONS Volume: 18 Issue: 8 Pages: 967-977 DOI: 10.1007/s00521-009-0233-7 Published: NOV 2009
- Title: Algorithm and Architecture Design of Power-Oriented H.264/AVC Baseline Profile Encoder for Portable Devices, Author(s): Chen Yu-Han; Chen Tung-Chien; Tsai Chuan-Yung; et al., Source: IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY Volume: 19 Issue: 8 Pages: 1118-1128 DOI: 10.1109/TCSVT.2009.2020323 Published: AUG 2009
- Title: Coherent multiscale image processing using dual-tree quaternion wavelets, Author(s): Chan Wai Lam; Choi Hyeokho; Baraniuk Richard G., Source: IEEE TRANSACTIONS ON IMAGE PROCESSING Volume: 17 Issue: 7 Pages: 1069-1082 DOI: 410887684,12,1 Published: JUL 2008

- Title: Algorithm and software optimization of variable block size motion estimation for H.264/AVC on a VLIW-SIMD DSP, Author(s): Lee Wonchul; Choi Hyojin; Sung Wonyong, Source: JOURNAL OF SIGNAL PROCESSING SYSTEMS FOR SIGNAL IMAGE AND VIDEO TECHNOLOGY Volume: 51 Issue: 3 Pages: 289-302 DOI: 10.1007/s11265-007-0151-9 Published: JUN 2008
- Title: Backward channel aware Wyner-Ziv video coding: A study of complexity, rate, and distortion tradeoff, Author(s): Liu Limin; Li Zhen; Delp Edward J., Source: SIGNAL PROCESSING-IMAGE COMMUNICATION Volume: 23 Issue: 5 Pages: 353-368 DOI: 10.1016/j.image.2008.04.003 Published: JUN 2008
- Title: Fast mode decision on H.264/AVC baseline profile for real-time performance, Author(s): Nieto Marcos; Salgado Luis; Cabrera Julian; et al., Source: JOURNAL OF REAL-TIME IMAGE PROCESSING Volume: 3 Issue: 1-2 Pages: 61-75 DOI: 10.1007/s11554-007-0062-9 Published: MAR 2008
- Title: Data reuse exploration for low power motion estimation architecture design in H.264 encoder, Author(s): Chen Yu-Han; Chen Tung-Chien; Tsai Chuan-Yung; et al., Source: JOURNAL OF SIGNAL PROCESSING SYSTEMS FOR SIGNAL IMAGE AND VIDEO TECHNOLOGY Volume: 50 Issue: 1 Pages: 1-17 DOI: 10.1007/s11265-007-0112-3 Published: JAN 2008
- Title: An epipolar geometry-based fast disparity estimation algorithm for multiview image and video coding, Author(s): Lu Jiangbo; Cai Hua; Lou Jian-Guang; et al., Source: IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY Volume: 17 Issue: 6 Pages: 737-750 DOI: 10.1109/TCSVT.2007.896659 Published: JUN 2007
- Title: Fast algorithm and architecture design of low-power integer motion estimation for H.264/AVC, Author(s): Chen Tung-Chien; Chen Yu-Han; Tsai Sung-Fang; et al., Source: IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY Volume: 17 Issue: 5 Pages: 568-577 DOI: 10.1109/TCSVT.2007.894044 Published: MAY 2007
- Title: The dual-tree complex wavelet transform, Author(s): Selesnick IW; Baraniuk RG; Kingsbury NG, Source: IEEE SIGNAL PROCESSING MAGAZINE Volume: 22 Issue: 6 Pages: 123-151 DOI: 10.1109/MSP.2005.1550194 Published: NOV 2005
- Title: Fast edge-based method for image magnification, Author(s): Chang CC; Chen GI, Source: IMAGING SCIENCE JOURNAL Volume: 52 Issue: 2 Pages: 85-98 DOI: 10.1179/136821904225011627 Published: JUN 2004

8. National and International Projects

- KAMAG-2009: **İYON**, "Forensic Image Enhancement/Restoration Project", researcher, TÜBİTAK-BİLGEM (BTE). 2009-2011.
- TÜBİTAK-2009: **KARİYER**, "Encoder Assisted Video Resolution Enhancement For Compressed Videos", Principal Investigator (PI), Işık Üniversitesi, 2009-2012.
- IŞIK-2006: **WAVELETS**, "Design of Efficient Block Segmentation Methods for Wavelet-based Image Coders", PI, Işık Üniversitesi, 2006-2009.
- TÜBİTAK-2005: **H.264**, "Efficient and Low-complexity Encoder Design for H.264 Video Coding Standard", PI, Işık Üniversitesi, 2005-2008.
- TEYDEB-2006: **CODEC**, "Design of Real-time Audio and Video Codecs", project consultant, VESTEK Elektronik A.Ş., 2006-2008.
- TÜBİTAK-2006: **3D-CODING**, "Efficient Spectral Coding of 3-D Mesh Geometry with Hierarchical Set Partitioning", researcher, Işık University + İTÜ, PI: Uluğ Bayazıt. 2006-2008.
- FP6-2004: **SPICE**, "Signal, Image Processing and Pattern Recognition for Intelligent Automation Center", Sabancı Üniversitesi. PI: Aytül Erçil. 2005-2008.
- DPT: **DRIVE-SAFE**, "Signal Processing and Advanced Information Technologies for Improving Driver/Driving Prudence and Accident Reduction", Konsorsiyum: OTAM - Automotive Technologies R-D Center (USAMP), Sabancı Üniversitesi, Koç Üniversitesi, İTÜ, Ford A.Ş., Renault A.Ş., Tofaş A.Ş. PI: Aytül Erçil. 2005-2007.

9. Administrative Positions

10. Memberships to Academic and Professional Societies

- Session Chair, Video coding-I, *IEEE Int. Conf. on Image Processing* (ICIP'06),
- Technical Committee Member and Session Chair, SIU'2006, 2007, 2008.
- TEYDEB and TÜBİTAK project reviewer.
- Reviewer in the following journals:
 - IEEE Transactions on Circuits and Systems for Video Technology
 - IEEE Transactions on Image Processing
 - Signal Processing: Image Communication, Elsevier
 - Digital Signal Processing, Elsevier
 - Journal of Electronic Imaging, SPIE
 - Signal Processing, Elsevier
 - IEEE Transactions on Multimedia
 - IEEE Transactions on Signal Processing
 - Optical Engineering, SPIE
- Reviewer in conferences: ICIP, ICASSP, EUSIPCO, SIU, ISCAS, Avics, ISCIS, ICPR.
- IEEE member, student (1996-2004), member (2004-2011), senior member(2011-)

11. Honors and Awards

- Princeton University Gordon Wu Fellowship in Engineering and Applied Sciences, 1998-2002.
- Valedictorian, among Bilkent University Engineering Faculty graduates, 1998.
- Bilkent University Scholarship, 1994-1998.
- TÜBİTAK (Science and Technology Research Organization of Turkey) Scholarship, 1994-1998.
- Rank 10, University Entrance Examinations, Turkey, 1994.
- Bronze Medal, 35th Mathematical Olympiads, 1994 Hong Kong (as a member of Turkish Team),
- Bronze Medal, 34th Mathematical Olympiads, 1993 İstanbul (as a member of Turkish Team).

12. Undergraduate and graduate courses taught in the last two academic years.

Academic Year	Semester	Course Name	Weekly Hours		No. of Students
			Theoric	Application	
2010-2011	Fall	EE584-Digital Video Processing	3	-	5
		EE484-Multimedia Processing and Communications	3	-	30
	Spring	EE203-Simulation Tools	2	2	27
		EE585- DSP Architecture, Programming and Applications	3	-	2
		EE453-Intro. to Image Processing	3	-	26
2011-2012	Fall	EE454- Multimedia Processing and Communications	3	-	34
		EE584- Digital Video Processing	3	-	4
		EE303- Simulation Tools	2	2	23
	Spring	EE225-Electrical Circuits	3	1	25
		EE453-Intro. to Image Processing	3	-	10