

## Umut Uludag, PhD

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<http://www.ekds.gov.tr/bio>

Address: TUBITAK - BILGEM - UEKAE,  
P.O. Box: 74, 41470, Gebze, Kocaeli, Turkey

### Education

Aug. 2001 - Mar. 2006 Michigan State University Michigan, USA  
Department of Computer Science and Engineering  
Ph.D.

*Worked on:*

- Fingerprint watermarking
- Steganography
- Biometric template selection and update
- Multimedia content protection
- Multimodal biometrics
- Biometric cryptography
- Biometric system security

*Courses:* Computer Vision, Algorithmic Graph Theory, Computability and Languages, Pattern Recognition and Analysis, Design and Theory of Algorithms, Advanced Computer Networks and Communications, Advanced Software Engineering, Selected Topics: Recognition by Machine, Cryptography and Network Security.

*Thesis Title:* Secure Biometric Systems

*Thesis Advisor:* Prof. Anil K. Jain

*Thesis Committee:* Prof. Anil K. Jain, Prof. Sarat Dass, Prof. Abdol-Hossein Esfahanian, Prof. George Stockman

1999 - 2001 Bogazici University Istanbul, Turkey  
Department of Electrical and Electronics Engineering  
M.Sc. (Honors)

*Worked on:*

- 2D image and 3D volume watermarking

- Fingerprint watermarking
- Audio watermarking

*Courses:* Computer Vision, Artificial Neural Networks, Pattern Recognition, Advanced Topics in Speech Processing, Speech Processing, Data Compression, Digital Signal Processing, Statistical Signal Analysis.

*Thesis Title:* Visual Data Watermarking based on Sinusoidal Signal Embedding

*Thesis Advisor:* Prof. Bulent Sankur

1995 - 1999

Bogazici University Istanbul, Turkey  
 Department of Electrical and Electronics Engineering  
 B.Sc. (Honors)

*Courses:* Image Processing, Computer Communication Networks, Mobile Communication, Information Theory, Digital Communication, Communication Engineering, Signals & Systems, Electronics I-II, Microprocessors, Robotics, Electromagnetic Waves, Electrotechnology, Digital Systems, System Dynamics & Control, Electrical Networks I-II, Electromechanical Energy Conversion, Electronics Laboratory...

*Thesis Title:* Document Image Segmentation by the Method of White Tiles

*Thesis Advisor:* Prof. Bulent Sankur

## Employment

Aug. 2012 - present

TUBITAK Kocaeli, Turkey  
 The Scientific and Technological Research Council of Turkey,  
 National Research Institute of Electronics and Cryptology  
 (UEKAE-NRIEC)

*Chief Researcher / Biometrics R&D Unit Manager:* Working on biometric systems & imaging / pattern recognition systems.

Feb. 2012 - Aug. 2012

TUBITAK Kocaeli, Turkey  
 The Scientific and Technological Research Council of Turkey,  
 National Research Institute of Electronics and Cryptology  
 (UEKAE-NRIEC)

*Senior Researcher / Biometrics R&D Unit Manager:* Worked on biometric systems.

- May 2009 - Feb. 2012 TUBITAK Kocaeli, Turkey  
The Scientific and Technological Research Council of Turkey,  
National Research Institute of Electronics and Cryptology  
(UEKAE-NRIEC)
- Senior Researcher:* Worked on digital security, digital watermarking,  
cryptography, biometric systems.
- April 2006 - Jan. 2009 Lumidigm, Inc. New Mexico, USA
- Scientist*
- Worked on:
- All aspects of algorithm design, development, tuning & testing for:
- fingerprint feature extraction and matching, verification & identification
  - biometric pattern recognition,
  - image processing,
  - multimodal biometrics,
  - multispectral imaging based data analysis,
  - biometric performance estimation,
  - whole hand biometrics
- Aug. 2001 - Mar. 2006 Michigan State University Michigan, USA  
Department of Computer Science and Engineering  
Pattern Recognition and Image Processing Laboratory
- Research Assistant:* Worked on biometrics, digital security,  
watermarking, fingerprint image processing, and multimedia processing.
- June 2005 - Aug. 2005 Symbol Technologies - Motorola New York, USA  
Advanced Development Engineering
- Advanced Development Intern:* Worked on embedded fingerprint  
recognition.
- May 2004 - Aug. 2004 Siemens Corporate Research New Jersey, USA  
Intelligent Vision and Reasoning
- Intern:* Worked on smart-card based fingerprint recognition.
- May 2003 - Aug. 2003 National Institute of Standards and Technology (NIST) Maryland, USA  
Convergent Information Systems
- Guest Researcher:* Worked on multibiometrics system analysis and  
design.

May 2002 - Aug. 2002 Intel Corporation California, USA  
Microprocessor Research Lab

*Graduate Technical Intern:* Worked on biometrics workload analysis.

July 1999 - July 2001 TUBITAK Kocaeli, Turkey  
The Scientific and Technological Research Council of Turkey,  
Marmara Research Center, Information Technologies Institute,  
Multimedia Systems Research Group

*Researcher:* Worked on object / target recognition, fingerprint image watermarking.

## Teaching Experience

Fall 2017 BIL 620: Biometric Systems and Identity Verification (in Turkish)  
Maltepe University Istanbul, Turkey  
Department of Computer Engineering

*Guest Lecturer:* Teaching graduate level course.

Spring 2017 BGM 545: Biometric Systems and Identity Verification (in Turkish)  
Spring 2016 Sehir University Istanbul, Turkey  
Spring 2015 Information Security Engineering  
Spring 2014

*Guest Lecturer:* Taught graduate level course.

Fall 2016 CS 583: Biometric Systems  
Fall 2015 Ozyegin University Istanbul, Turkey  
Fall 2014 Computer Science

*Guest Lecturer:* Taught graduate level course.

Fall 2013 CSE 669: Special Topics in Computer Vision: Biometric Systems  
Gebze Institute of Technology Kocaeli, Turkey  
Department of Computer Engineering

*Guest Lecturer:* Taught graduate level course.

## Sample Projects

2012 - 2014 TUBITAK: Turkish Republic National Identity Card Project  
*Biometrics R&D Lead*

Worked on documentation, design and support for biometric sub-systems of the project.

2009 - 2011 TUBITAK: BETASIS-I (Document Tracking System) Project

### *Assistant Project Manager*

Designed & developed a background modulation based, noise tolerant algorithm for printed document tracking; worked on commercialization of the associated system.

## **Research Interests**

Biometrics, Pattern Recognition, Watermarking, Multimedia, Image & Signal Processing, Computer Vision, Digital Security, Cryptography.

## **Publications**

### ***Book Chapters:***

- A.K. Jain and U. Uludag, “Biometrics in Digital Rights Management”, in *Multimedia Security Technologies for Digital Rights Management*, W. Zeng, H. Yu, and C-Y. Lin (Eds.), pp. 197-218, Academic Press, 2006.
- A.K. Jain, K. Nandakumar, U. Uludag and X. Lu, “Multimodal Biometrics: Augmenting Face With Other Cues”, in *Face Processing: Advanced Modeling and Methods*, R. Chellappa and W. Zhao (Eds.), pp. 679-705, Academic Press, 2006.

### ***Journal Articles:***

- M. Yildiz, B. Yanikoglu, A. Kholmatov, A. Kanak, U. Uludag and H. Erdogan, “Biometric Layering with Fingerprints: Template Security and Privacy through Multi-biometric Template Fusion”, *The Computer Journal*, vol. 60, no. 4, pp. 573-587, March 2017.
- U. Uludag, “Digital Watermarking I: Fundamental Properties”, *BILGEM Journal*, vol. 3, no. 7, pp. 76-81, September-December 2011 (in Turkish).
- M.S. Kiraz, F. Birinci and U. Uludag, “Electronic Voting: Methods, Applications, Cryptology Infrastructure and Beyond”, *UEKAE Journal*, vol. 2, no. 4, pp. 74-87, September-December 2010 (in Turkish).
- R. Snelick, U. Uludag, A. Mink, M. Indovina, and A. Jain, “Large Scale Evaluation of Multimodal Biometric Authentication Using State-of-the-Art Systems”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 27, no. 3, pp. 450-455, March 2005.
- U. Uludag, S. Pankanti, S. Prabhakar and A.K. Jain, “Biometric Cryptosystems: Issues and Challenges”, *Proceedings of the IEEE, Special Issue on Multimedia Security for Digital Rights Management*, vol. 92, no. 6, pp. 948-960, June 2004.
- U. Uludag, A. Ross and A.K. Jain, “Biometric Template Selection and Update: A Case Study in Fingerprints”, *Pattern Recognition*, vol. 37, no. 7, pp. 1533-1542, July 2004.
- A.K. Jain and U. Uludag, “Hiding Biometric Data”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 25, no. 11, pp. 1494-1498, November 2003.
- B. Gunsel, U. Uludag and A.M. Tekalp, “Robust Watermarking of Fingerprint Images”, *Pattern Recognition*, vol. 35, no. 12, pp. 2739-2747, December 2002.

### **United States Patent:**

- U. Uludag, R.K. Rowe, K.A. Nixon and M.S. Ennis, *Multibiometric Multispectral Imager*, Patent Number: 7,899,217, Issue Date: March 1, 2011, (Patent Application Publication Date: August 14, 2008), Lumidigm, Inc.

### **Conference Papers:**

- N. Celenli, K.N. Sevis, M.F. Esgin, K. Altundag and U. Uludag, “An Unconstrained Activity Recognition Method Using Smart Phones”, *Proc. 13. International Conference of the Biometrics Special Interest Group (BIOSIG 2014)*, pp. 219-226, Darmstadt, Germany, September 2014.
- S. Karahan, A. Karaoz, O.F. Ozdemir, A.G. Gul and U. Uludag, “On Identification From Periocular Region Utilizing SIFT and SURF”, *Proc. 22nd European Signal Processing Conference (EUSIPCO) 2014*, pp. 1392-1396, Lisbon, Portugal, September 2014.
- B. Topcu, M. Kayaoglu and U. Uludag, “Fingerprint Phalanx-Based Score Fusion”, *Proc. IEEE SIU-2013, Signal Processing and Communications Applications Conf.*, Girne, North Cyprus, April 2013, (in Turkish).
- B. Topcu, M. Kayaoglu, M. Kilinc Yildirim and U. Uludag, “Fingerprint Matching Utilizing Non-Distal Phalanges”, *Proc. ICPR-2012, 21. International Conference on Pattern Recognition*, pp. 2400-2403, Tsukuba Science City, Japan, November 2012.
- M. Kilinc and U. Uludag, “Gender Identification from Face Images”, *Proc. IEEE SIU-2012, Signal Processing and Communications Applications Conf.*, Mugla, Turkey, April 2012, (in Turkish).
- R.K. Rowe, U. Uludag, M. Demirkus, S. Parthasaradhi and A. Jain, “A Multispectral Whole-hand Biometric Authentication System”, *Proc. Biometrics Symposium 2007*, Baltimore, MD, September 2007.
- R.K. Rowe, K.A. Nixon, S. Parthasaradhi and U. Uludag, “Robust Fingerprint Acquisition”, *Proc. SPIE Defense & Security Symposium, Biometric Technology for Human Identification IV*, vol. 6539, Orlando, FL, April 2007.
- U. Uludag and A. K. Jain, “Securing Fingerprint Template: Fuzzy Vault with Helper Data”, *Proc. IEEE Workshop on Privacy Research In Vision (PRIV)*, New York City, NY, June 2006.
- A. Jain, A. Ross and U. Uludag, “Biometric Template Security: Challenges and Solutions”, *Proc. 13th European Signal Processing Conference (EUSIPCO) 2005*, Antalya, Turkey, September 2005.
- U. Uludag, S. Pankanti and A. Jain, “Fuzzy Vault for Fingerprints”, *Proc. AVBPA 2005, 5. International Conference on Audio- and Video-Based Biometric Person Authentication*, pp. 310-319, Rye Brook, NY, July 2005, (in *Lecture Notes in Computer Science*, vol. 3546, Springer, 2005). **This paper received Best Student Paper Award sponsored by Identix Incorporated.**
- J. Reisman, U. Uludag and A. Ross, “Secure Fingerprint Matching with External Registration”, *Proc. AVBPA 2005, 5. International Conference on Audio- and Video-Based Biometric Person Authentication*, pp. 720-729, Rye Brook, NY, July 2005, (in *Lecture Notes in Computer Science*, vol. 3546, Springer, 2005).
- U. Uludag and A.K. Jain, “Fingerprint Minutiae Attack System”, *The Biometric Consortium Conference*, Arlington, VA, September 2004.
- U. Uludag and A.K. Jain, “Fuzzy Fingerprint Vault”, *Proc. Workshop: Biometrics: Challenges Arising from Theory to Practice*, pp. 13-16, Cambridge, UK, August 2004.
- U. Uludag and A.K. Jain, “Attacks on Biometric Systems: A Case Study in Fingerprints”, *Proc. SPIE-EI 2004, Security, Steganography and Watermarking of Multimedia Contents VI*, vol. 5306, pp. 622-633, San Jose, CA, January 2004.
- M. Indovina, U. Uludag, R. Snelick, A. Mink and A. Jain, “Multimodal Biometric Authentication Methods: A COTS Approach”, *Proc. MMUA 2003, Workshop on Multimodal User Authentication*, pp. 99-106, Santa Barbara, CA, December 2003.

- U. Uludag and A.K. Jain, “Multimedia Content Protection via Biometrics-based Encryption”, *Proc. ICME 2003, IEEE International Conference on Multimedia & Expo*, vol. III, pp. 237-240, Baltimore, MD, July 2003.
- A.K. Jain, U. Uludag and A. Ross, “Biometric Template Selection: A Case Study in Fingerprints”, *Proc. AVBPA 2003, 4. International Conference on Audio- and Video-Based Biometric Person Authentication*, pp. 335-342, Guildford, UK, June 2003, (in *Lecture Notes in Computer Science*, vol. 2688, Springer, 2003).
- A.K. Jain, U. Uludag and R.L. Hsu, “Hiding a Face in a Fingerprint Image”, *Proc. ICPR 2002, 16. International Conference on Pattern Recognition*, vol. 3, pp. 756-759, Quebec, Canada, August 2002.
- A.K. Jain and U. Uludag, “Hiding Fingerprint Minutiae in Images”, *Proc. AutoID 2002, 3. Workshop on Automatic Identification Advanced Technologies*, pp. 97-102, Tarrytown, NY, March 2002.
- U. Uludag, B. Günsel and M. Ballan, “A Spatial Method for Watermarking of Fingerprint Images”, *Proc. PRIS 2001, 1st International Workshop on Pattern Recognition in Information Systems*, pp. 26-33, Setubal, Portugal, July 2001.
- U. Uludag and B. Sankur, “Sinusoidal Image Watermarking”, *Proc. IEEE SIU-2001, 9. Signal Processing and Applications Conference*, pp. 51-55, Gazi Magusa, North Cyprus, April 2001, (in Turkish).
- U. Uludag, B. Günsel and A.M. Tekalp, “Robust Watermarking of Busy Images”, *Proc. SPIE-EI 2001, Security and Watermarking of Multimedia Contents III*, vol. 4314, pp. 18-25, San Jose, CA, January 2001.
- U. Uludag, B. Günsel and A.M. Tekalp, “An Amplitude Modulation based Watermarking Method for Multimedia Data”, *Proc. IEEE SIU-2000, 8. Signal Processing and Applications Conference*, pp. 518-523, Antalya, Turkey, June 2000, (in Turkish).

#### **Technical Reports:**

- A. Khodabakhsh, S.S. Sarfjoo, U. Uludag, O. Soyyigit and C. Demiroglu, “Incorporation of Speech Duration Information in Score Fusion of Speaker Recognition Systems”, *arXiv:1608.02272 [cs.SD]*, August 2016.
- M. Kayaoglu, B. Topcu and U. Uludag, “Biometric Matching and Fusion System for Fingerprints from Non-Distal Phalanges”, *arXiv:1505.04028 [cs.CV]*, May 2015.
- M. Kayaoglu, B. Topcu and U. Uludag, “Standard Fingerprint Databases: Manual Minutiae Labeling and Matcher Performance Analyses”, *arXiv:1305.1443 [cs.CV]*, May 2013.
- U. Uludag and L.M. Arslan, “Audio Watermarking Using DC Level Shifting”, *Project Technical Report*, Bogazici University, Istanbul, Turkey, January 2001.

#### **Books for Children:**

- S. Kulekci, M.S. Kiraz and U. Uludag, *Crypto Kids-1: Numbers & Cryptology*, August 2011, (in Turkish).

#### **Novelette:**

- U. Uludag, *Istanbul Cipher*, July 2013, (in Turkish).

#### **Short Story:**

- U. Uludag, *Blackboard Mystery*, September 2014, (in Turkish).

## Poems:

### *In Turkish:*

- U. Uludag, *The Lost Calligrapher 1*, January 2015.
- U. Uludag, *The Lost Calligrapher 2*, February 2015.
- U. Uludag, *The Lost Calligrapher 3*, March 2015.
- U. Uludag, *The Lost Calligrapher 4*, March 2015.
- U. Uludag, *The Lost Calligrapher 5*, April 2015.
- U. Uludag, *The Lost Calligrapher 6*, April 2015.
- U. Uludag, *The Lost Calligrapher 7*, April 2015.
- U. Uludag, *The Lost Calligrapher 8*, April 2015.
- U. Uludag, *The Lost Calligrapher 9*, May 2015.
- U. Uludag, *The Lost Calligrapher 10*, December 2015.
- U. Uludag, *The Lost Calligrapher 11*, February 2016.
- U. Uludag, *The Lost Calligrapher 12*, June 2016.
- U. Uludag, *The Lost Calligrapher 13*, January 2017.
- U. Uludag, *The Lost Calligrapher 14*, January 2017.
- U. Uludag, *The Lost Calligrapher 15*, July 2017.
- U. Uludag, *The Lost Calligrapher 16*, August 2017.
- U. Uludag, *The Lost Calligrapher 17*, August 2017.

### *In Russian:*

- U. Uludag, *Потерянный каллиграф*, April 2016 (Russian translation: D. Tanriverdi).

## University Internships

July 1998 - Aug. 1998      Nortel Networks - NETAS A.S.      Istanbul, Turkey

*Intern:* Worked on signaling in telecommunications networks & digital exchanges.

May - Aug. 1997 & May - June 1998      Turkish Telecommunications A.S.      Istanbul, Turkey

*Intern:* Worked on ISDN & SDL language of CCITT; PCM systems & DMS systems.

## Professional Activities

- Member: IEEE
- Reviewer: IEEE Trans. on Pattern Analysis and Machine Intelligence; IEEE Trans. on Image Processing; International Journal of Computer Vision; Machine Vision and Applications; Signal Processing Letters; IEEE Trans. on Industrial Electronics; Image and Vision Computing; IEEE Trans. on Parallel and Distributed Systems; IEEE Trans. on Fuzzy Systems; Signal, Image and Video Processing; Journal of Information Security and Applications; EURASIP Journal on Information Security; Industrial Electronics Magazine (Journals) and numerous conferences.



- Presented posters at Center for Identification Technology Research (CITeR), West Virginia, meetings: “Biometric Template Selection and Update: A Case Study in Fingerprints”, and “Multimedia Content Protection via Biometrics-based Encryption”, November 2003.
- Presented poster at MSU CyberSecurity Initiative Workshop: “Multimedia Content Security”, November 2003.
- Participated in Research Open House, CSE, MSU, 2001-2005.
- Participated in Science, Engineering and Technology (SET) Day, MSU, 2001-2003.
- Participated in Alumni Distinguished Scholars (ADS) Presentations, MSU, 2004.
- Program Committee Member: International Conference on Informatics (ICI-2004).
- Presented paper at The Biometric Consortium Conference 2004: “Fingerprint Minutiae Attack System”, Arlington, VA, September 2004.
- Web Support Coordinator: AVBPA 2005, 5. International Conference on Audio- and Video-Based Biometric Person Authentication, 2005.
- Presented paper at The Biometric Consortium Conference 2005: “Fingerprint-based Fuzzy Vault”, Arlington, VA, September 2005.
- Program Committee Member: Biometric Technology for Human Identification IV (DS36), 2007.
- Program Committee Member: Biometric Technology for Human Identification V (DS26), 2008.
- Program Committee Member: Biometrics Symposium 2007.
- Author: OEIS (The On-Line Encyclopedia of Integer Sequences), <http://oeis.org>, (19 sequences), September 2009 – present.
- Speaker: EuroForensics 2010, Istanbul, March 2010.
- Affiliated Researcher: Sabanci University, Biometrics Research Group, 2010 – present.
- External Reviewer: Turkish Standards Institution (TSE), July 2010 – present.
- Program Co-Chair (with Prof. E. Savas -Sabanci University- and Prof. A.A. Selcuk -Bilkent University-): LightSec 2011, Workshop on Lightweight Security & Privacy, Istanbul, March 2011.
- Author/Puzzlemaster: Online Cryptology Puzzles, UEKAE Website, June 2010 - present (in Turkish).
- Author/Puzzlemaster: Sifresayar (*CipherCounter*): Journal Cryptology Puzzles Section, *BILGEM Journal*, September 2010 – December 2011 (in Turkish).
- Coordinator: TUBITAK Cryptology Info Day 2010, Ankara, October 2010; TUBITAK Cryptology Info Day 2011, Ankara, October 2011.
- Speaker: TUBITAK Cryptology Info Day 2010, Ankara, October 2010; TUBITAK Cryptology Info Day 2011, Ankara, October 2011.
- Program Committee Member: Communications and Multimedia Security (CMS) 2011, Belgium.
- Speaker: "Biometric Systems & Security", December 2010, Sabanci University, Computer Science and Engineering.
- Speaker: EMEA Intelligence 2011, Istanbul, March 2011.
- Editorial Board Member: *BILGEM Journal*, May 2011 – December 2011.
- Author: Kripkatur (*CrypCapture*): Journal Caricature Section, *BILGEM Journal*, May 2011 – December 2011.
- Game Designer (with Y. Uludag): ASATO, June 2011; DOSA, July 2011; KOTA, July 2011; FAZ, July 2011; STAR, August 2011; PAS, September 2011; DAHA, January 2012; AKAT, January 2012; BEHA, February 2012; KEA, December 2012; 76K, January 2013; KEY, January 2013; KRIKART, April 2013; RAY, April 2013; KARBON, September 2013; PARKA, October 2013; 4K1M, December 2013; 106K, February 2014; ADRES, September 2014; KARA, January 2015; SAKA, August 2016.
- Advisory Board Member: Istanbul Technical University (ITU), Telecommunications Engineering Program, Istanbul, June 2011 - present.
- Specialist & Instructor: Cryptology Summer School 2011 (7th Grade Students), Kocaeli, July 2011; Cryptology Summer School 2012 (7th Grade Students), Kocaeli, July 2012; Cryptology Summer School 2013 (7th Grade Students), Kocaeli, June 2013.

- Specialist & Instructor: Cryptology Summer School 2011 (University Junior-Seniors), Kocaeli, September 2011; Cryptology Summer School 2012 (University Junior-Seniors), Kocaeli, September 2012; Cryptology Summer School 2013 (University Junior-Seniors), Kocaeli, August 2013; Cryptology Summer School 2015 (University Junior-Seniors), Kocaeli, August 2015; Cryptology Summer School 2016 (University Junior-Seniors), Kocaeli, August 2016; Cryptology Summer School 2017 (University Junior-Seniors), Kocaeli, August 2017.
- Specialist & Instructor: Cryptology Winter School 2012 (High School Students), Kocaeli, January 2012; Cryptology Summer School 2012 (High School Students), Kocaeli, June 2012; Cryptology Summer School 2013 (High School Students), Kocaeli, September 2013; Cryptology Summer School 2015 (High School Students), Kocaeli, September 2015; Cryptology Summer School 2016 (High School Students), Kocaeli, August 2016; Cryptology Summer School 2017 (High School Students), Kocaeli, August 2017.
- Specialist & Instructor: Cryptology Winter School 2013 (High School Mathematics Teachers), Kocaeli, February 2013.
- Technical Program Committee Member: International Conference on Multimedia and Expo (ICME) 2011, Spain.
- Institute Academic Advisor: 2 Ph.D. & 4 M.Sc. students, TUBITAK-BILGEM-UEKAE, September 2011 – December 2012.
- Monthly Problem/Puzzle Solver: IBM Research Ponder This (June 2011, August 2011, December 2012, April 2013, October 2013, December 2013, November 2015, January 2016, May 2017); Bilkent University Math Problem of the Month (February 2004, May 2006, September 2011, October 2013); Stetson University - Math Magic (November 2013).
- Program Committee Member: Communications and Multimedia Security (CMS) 2012, UK.
- Program Committee Member: Communications and Multimedia Security (CMS) 2013, Germany.
- Program Committee Member: International Conference on Biometrics (ICB) 2013, Spain.
- Program Committee Member: Ubiquitous Security and Privacy Solutions @ EUSPN 2013, Canada.
- Organizational Committee Member & Speaker: Istanbul Biometrics Conference, May 2013, Istanbul.
- Database Publisher: Fingerprint Manual Minutiae Marker (FM3) Databases, June 2013.
- Speaker: "Biometric Systems: Security Considerations, Whole Hand Sensor Development & Fingerprint Processing", June 2013, Bogazici University, Department of Electrical and Electronics Engineering.
- Speaker: "Biometric Systems: Security Considerations, Whole Hand Sensor Development & Fingerprint Processing", July 2013, Gebze Institute of Technology, Department of Computer Engineering.
- Program Committee Member: Workshop in Information Security Theory and Practice (WISTP) 2014, Greece.
- Speaker: "Biometric Systems: Security Considerations, Whole Hand Sensor Development & Fingerprint Processing", December 2013, Dogus University, Department of Electronics and Communications Engineering.
- Speaker: "Biometric Systems: Security Considerations, Whole Hand Sensor Development & Fingerprint Processing", December 2013, Ozyegin University, Faculty of Engineering.
- Program Committee Member: Communications and Multimedia Security (CMS) 2014, Portugal.
- Speaker: "Biometric Systems: Security Considerations, Whole Hand Sensor Development & Fingerprint Processing", April 2014, Istanbul Medipol University, Faculty of Engineering and Natural Sciences.
- Program Committee Member: Security, Privacy and Trust @ EUSPN 2014, Canada.
- Program Committee Member: 9th WISTP International Conference on Information Security Theory and Practice 2015, Greece.
- Panelist: Biometrics Workshop, Cyber Security and Biometric Research Counseling and Testing Center, Yildiz Technical University, June 2015.

- MSc Thesis Advisor: Sehir University: K.N. Sevis, E.O. Sozeri, September 2015 – September 2016.
- MSc Graduation Project Advisor: Sehir University: M. Pesen (2015), H. Ocak (2015), S.H. Yildirim (2016).
- Interviewee: Bogazici Dergisi, September 2015.
- Program Committee Member: 7th International Conference on Ambient Systems, Networks and Technologies 2016, Spain.
- Panelist: 11. ILTEK Days, Yildiz Technical University, March 2016.
- Advisor: Cyber Security and Biometric Research Counseling and Testing Center, Yildiz Technical University, March 2016 – present.
- Instructor: International Children's Festival, Kocaeli Science Center, April 2016.
- Program Committee Member: 8th International Conference on Ambient Systems, Networks and Technologies 2017, Portugal.
- Speaker: "Biometric Systems", February 2017, Maltepe University, Faculty of Engineering and Natural Sciences.
- Program Committee Member: 11th WISTP International Conference on Information Security Theory and Practice 2017, Greece.
- Exhibitor: IDEF International Defense Industry Fair, Istanbul, Turkey, May 2017.

### **Awards and Recognitions**

- Biography included in: Marquis Who's Who in America, 60<sup>th</sup> Diamond Ed., 2006.
- Success Award, TUBITAK, Marmara Research Center, 2005.
- Best Student Paper Award, Audio- and Video-based Biometric Person Authentication Conference, 2005.
- M.Sc. Honors, Bogazici University, Department of Electrical and Electronics Engineering, 2001.
- B.Sc. Honors, Bogazici University, Department of Electrical and Electronics Engineering, 1999.
- University Scholarship, TUBITAK, The Scientific and Technological Research Council of Turkey, 1994-1995.

### **Computer Knowledge**

C, C++, Java, MATLAB, Maple / Windows, LINUX, UNIX

### **References**

Available upon request.