

Assoc. Prof. Ahmet Emir Dirik

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| CONTACT INFORMATION | Uludag Uni., Muh. Fak. Bilgisayar Muhendisligi Bolumu Gorukle kampusu, 16059, Bursa Turkey | email: edirik {at} uludag.edu.tr phone: +90 (224) 29 40655 fax: +90 (224) 294 1903 web : edirik.home.uludag.edu.tr |
| RESEARCH INTERESTS | Image Processing, Multimedia Security, Multimedia Forensics, Data hiding, Steganography, Watermarking, Pattern Recognition, Signal processing, Biometrics, Behavior-metrics, Usable security, Graphical Passwords. | |
| EDUCATION | Polytechnic Institute of NYU, USA Ph.D, Electrical & Computer Engineering, <ul style="list-style-type: none">• Dissertation: "New Techniques in Multimedia Forensics"• Advisor: Nasir Memon | April 2010 |
| | Uludag University, Turkey MS, Electronic Engineering, <ul style="list-style-type: none">• Thesis: "GPS based real time vehicle tracking system" | July 2002 |
| | Uludag University, Turkey MBA, Institute of Social Sciences | July 2002 |
| | Uludag University, Turkey B.A., Electronic Engineering | June 1999 |
| ACADEMIC EXPERIENCE | Uludag University, Turkey Associate Professor in Dept. of Computer Engineering | Jan 2015 - |
| | Uludag University, Turkey Associate Professor in Dept. of Elect. and Electronic Engineering | Oct 2015 - Jan 2015 |
| | Uludag University, Turkey Assistant Professor in Dept. of Elect. and Electronic Engineering | April 2012 - Oct 2015 |
| | New York University, Abu Dhabi, UAE Visiting Research Scientist | July 2014 - Sept 2014 |
| | New York University, Abu Dhabi, UAE Postdoctoral Research Associate | July 2013 - Sept 2013 |
| | New York University, Abu Dhabi, UAE Postdoctoral Research Associate | June 2012 - Sept 2012 |
| | Uludag University, Turkey Research assistant in Dept. of Electronic Engineering | June 2001 - April 2012 |

Polytechnic Institute of NYU, Brooklyn, NY, US Jan. 2006 - June 2010
Research fellow in Dept. of Electrical and Computer Engineering
Includes current Ph.D. research, and research/consulting projects.

Polytechnic University, Brooklyn, NY, US June 2004 - June 2005
Visiting researcher
Research for NSF funded project on steganalysis.

PROFESSIONAL
EXPERIENCE

IBM Fall 2009
T.J. Watson Research Center, Hawthorne, NY

- Research on video content analysis and OCR
- A video content analysis application demo was developed.
- The application demo was presented in Lotusphere 2010 Conference.
- Patent submitted.

Pitney Bowes Summer 2008
AC&T, Advanced Concepts and Technology, Shelton, CT.

- Research on print-scan modelling, image encryption, counterfeit detection
- Patent application submitted to USPTO on Dec 2008.

Pitney Bowes Summer 2007
AC&T, Advanced Concepts and Technology, Shelton, CT.

- Research on image and document security, print-scan channel modelling
- Patent application submitted to USPTO on Dec. 2008.

COURSES TAUGHT

- Graduate
Pattern Recognition
Advanced Digital Image Processing
- Undergraduate
Digital Signal Processing
Digital Image Processing
Computer Programming I
Computer Programming II

PROJECTS

- Image Source Anonymization, supported by The Scientific and Technological Research Council of Turkey, Project 113E092, 2013-2014, (Principal Investigator)
- "A Unified Steganalysis Framework", Air Force Office of Scientific Research (AFOSR), USA, 2008-2010, Grant number FA9550-09-1-0087, (Researcher)
- "Source Camera Identification and Blind Tamper Detections for Images", Air Force Office of Scientific Research (AFOSR), USA, 2005-2007, AFOSR Contract Number: FA9550-05-1-0130, (Researcher)
- "Source Camera Identification", National Institute of Justice (NIJ), USA, 2005-2007, Grant number 2006-92251-NY-IJ, (Researcher)
- "US-Turkey Cooperative Research: Steganalysis Techniques for Images and Audio", National Science Foundation (NSF), USA, 2002-2006, Grant number: #0218074, (Researcher)

PATENTS

- Anonymization system and method for digital images, WO 2014163597 A2, April 2014.
- Image Encryption For Print-And-Scan Channels Using Pixel Position Permutation, United States US8705736 B2, Issued April 22, 2014
- Automatic Video Summarization, United States US 20120106925 A1, Issued April 1, 2014.
- System And Method For Paper Independent Copy Detection Pattern, United States US8335744 B2, Issued December 18, 2012.
- User Authentication For Devices With Touch Sensitive Elements, Such As Touch Sensitive Display Screens, filed in U.S. Patent and Trademark Office on Jan. 2010, US2010/0225443 A1, Sept. 2010.

BOOK CHAPTER

- A. E. Dirik, Source Attribution Based on Physical Defects in Light Path, Digital Image Forensics, in H.T. Sencar and N.D. Memon (eds.), Springer, New York, 2012.

SELECTED PUBLICATIONS

- A. E. Dirik, H. T. Sencar, N. Memon, Analysis of Seam-Carving Based Anonymization of Images Against PRNU Noise Pattern Based Source Attribution, *IEEE Transactions on Information Forensics and Security*, Vol. 9, No. 12, p. 2277 - 2290, Oct. 2014.
- A. E. Dirik, A. Karaküçük, Forensic Use Of Photo Response Non-Uniformity Of Imaging Sensors And A Counter Method, *Optics Express*, Vol. 22, No. 1, p. 470-481, 2014.
- A. E. Dirik, B. Haas, Copy Detection Pattern Based Document Protection for Variable Media, *IET Image Processing*, Vol. 6, No. 8, p. 1102-1113, Nov. 2012.
- M. Topkara, S. Pan, J. Lai, A. E. Dirik, S. Wood, J. Boston, "You've got Video": Increasing clickthrough when sharing enterprise video with email", ACM SIGCHI Conference on Human Factors in Computing Systems, CHI 2012, Austin, TX. (23% acceptance rate)
- S. Bayram, A. E. Dirik, H. T. Sencar, N. Memon. An Ensemble of Classifiers Approach to Steganalysis, ICPR 2010, International Conference on Pattern Recognition, 2010, Istanbul. (18% acceptance rate)
- A. E. Dirik, N. Memon. Image Tamper Detection Based on Demosaicing Artifacts, IEEE ICIP 2009, Egypt. (45% acceptance rate)
- A. E. Dirik, H. T. Sencar, N. Memon. Flatbed Scanner Identification Based On Dust and Scratches Over Scanner Platen, IEEE ICASSP 2009.
- A. E. Dirik, H. T. Sencar, N. Memon. Camera identification based on sensor dust traces, *IEEE Transactions of Information Security and Forensics*, Sept, 2008.
- A. E. Dirik, S. Bayram, H. T. Sencar, N. Memon. New features to identify computer generated images, Proc. of IEEE ICIP, 2007.
- A. E. Dirik, N. Memon, J. C. Birget, Modeling User Choice in the PassPoints Graphical Password Scheme, Symposium on Usable Privacy and Security 2007 (SOUPS 2007). (31% acceptance rate)
- A. E. Dirik, H. T. Sencar, N. Memon. 2007. Source Camera Identification Based on Sensor Dust

Characteristics, SAFE 2007: Workshop on Signal Processing Applications for Public Security and Forensics, April, 2007.

SOFTWARE
DEVELOPMENT

- A signature authentication software developed for iPhone/iPod Touch. (2009)
The project page: <http://identouch.com>

PRESS COVERAGE

- The National UAE, Your prints are all over your photos, April 27, 2014.
- The New York Times, Logging In With a Touch or a Phrase (Anything but a Password), December 24, 2011.
- Thomson, The Security Newsletter, N 13, Spring 2009.

REFEREED FOR

- IEEE Transactions of Information Forensics and Security
- IEEE Transactions of Image Processing
- IEEE Transactions on Multimedia
- IEEE International Conference on Image Processing
- IET Image Processing
- Elsevier, Computers and Electrical Engineering Journal
- Elsevier, Signal Processing Journal
- Springer, Signal, Image and Video Processing
- Computer/Human Interaction Conference, CHI

HONORS AND
AWARDS

- 2nd prize winner of TET R&D Project Brokerage Event 3, Istanbul, 2014.
- 2nd prize winner of Uludag University Research Poster Competition, 2014.
- 3rd prize winner of CSAW 2007 Research Poster Competition, 2007.
- Polytechnic Institute of NYU, ECE Research Fellowship, 2006-2010.
- Polytechnic Institute of NYU, CATT (Center for Advanced Technology) Graduate Research Fellowship, 2005-2006.
- YOK (Turkish Higher Education Council) PhD Scholarship, 2006-2009.
- Uludag University, Graduated with highest GPA, 1999.
- TOFAS A.S, Undergraduate scholarship, 1996.