

# SILA EKMEKCI-FLIERL

## *Curriculum Vitae*

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## RESEARCH INTERESTS

multimedia systems/communications/networking, signal/video processing/coding, machine learning, artificial intelligence

## EDUCATION

### **Ph.D. (Dr.-Ing.) in Electrical Engineering with Highest Honors**

- Technical University Berlin, Berlin, Germany, December 2004.
- Dissertation Title: Multi-State Video Coding over Error-Prone Channels.
- Advisors: Prof. Thomas Sikora and Prof. Peter Noll.

### **DIPLOMA (Dipl-Ing., M.S. equivalent) in Electrical Engineering with Highest Honors**

- Technical University of Berlin, Berlin, Germany, May 1998.
- Thesis Title: Multi-view Representation and Synthesis of Video Objects.
- Advisors: Prof. Peter Noll and Prof. Jens-Rainer Ohm.

### **B.S. in Electrical Engineering with Highest Honors**

- Bogazici University, Istanbul, Turkey, June 1996.
- Diploma Thesis: Robot Path Planning Methods.

### **B.S. in Computer Engineering (Double Major) with Highest Honors**

- Bogazici University, Istanbul, Turkey, June 1996.

### **High School Diploma with Highest Honors**

- Istanbul Lisesi, Istanbul, Turkey, June 1991.

## WORK EXPERIENCE

**Assistant Professor** at Computer Engineering Department, Kadir Has University, Istanbul, Turkey, December 2017-present

- performing research on machine learning for image and video communications

**Freelance Researcher, Lecturer and Consultant**, Istanbul, Turkey, July 2015-November 2017

- gave the following undergraduate level courses at Kadir Has University, Istanbul, Turkey:
  - Operating Systems
  - Programming II (Java Programming)
  - Database Management Systems
  - Data Structures and Algorithms

**Assistant Professor** at Computer Engineering Department, Istanbul Kültür University, Istanbul, Turkey, December 2009-June 2015

- performed research on multimedia systems, communications and networking, video coding
- served as vice chair of the Computer Engineering Department (2011-2013)
- served as Board Member of Faculty of Engineering (2011-2014)
- served as a Management Board Member of Faculty of Engineering (2011-2014)
- served as Graduate Program Coordinator of the Computer Engineering Department (2010-2015)
- served as Erasmus Coordinator of the Faculty of Engineering (2010-2015)
- served as member of Committee on Erasmus Mobility for Students (2010-2015)
- served as member of Committee on Erasmus Mobility for Faculty (2010-2015)
- served as member of Committee on Erasmus Mobility for Internship (2010-2015)
- served as member of Committee on the Foundation of an Informatics Department
- served as member of Faculty Selection and Foreign Language Committee
- served as member of Committee on Grade Equivalences between Erasmus Partner Universities (2010-2015)
- served as member of Committee on Course Codes (2011)
- served as member of Curriculum Commission (2011-2015)
- served as member of Commission on Grade Objections (2010-2015)
- served as member of the Erasmus Mobility Selection Committee (2010-2015)
- served as jury member for MS Thesis: Ercan Opak, Sanal Heykeltraşlık Sisteminde Sanal Düzlem Tabanlı Yeni Bir Hat Belirleme Yaklaşımı, 2010.
- served as member of the Committee on Strategic Planning for Collaboration with Industry, Society and other Partners. (2010)
- served as expert in law court on course grades (2010)
- advised BS and MS students (2010-2015)
- supervised several BS theses (2010-2015)
- supervised a MS thesis:
  - Öznur Şengel, *Network Coding for Multi-State Video Transmission*, Spring 2013.
- gave the undergraduate level courses:
  - Computer Organization,
  - Computer Networks,
  - Multimedia Compression,
  - Image Processing,
  - Introduction to Computer Engineering
- gave the graduate level course:
  - Image Processing

**Freelance Consultant**, Täby, Sweden, April 2009- November 2009.  
consulted in the areas of video signal processing and compression.

**Senior Researcher** at Sound and Image Processing Laboratory, Royal Institute of Technology (KTH), Stockholm, Sweden, August 2008-March 2009.

performed research on a flexible and channel adaptive video coding system in the context of the FlexCode project (European Commission's Sixth Framework Program, [www.flexcode.rwth-aachen.de/index.html](http://www.flexcode.rwth-aachen.de/index.html) ).

**Consultant** for Kirkland & Ellis LLP, Palo Alto, CA, USA, 2005-2008.

consulted in the areas of video signal processing and compression with emphasis on intellectual property and patent infringement.

**Senior Researcher** at Signal Processing Institute, Swiss Federal Institute of Technology, Lausanne, Switzerland, July 2004-June 2005 (Director: Prof. Murat Kunt).

- performed research on video communications over error prone channels.
- participated into the European Network of Excellence 'SIMILAR': European taskforce creating human-machine interfaces SIMILAR to human-human communication, (<http://www.similar.cc> )

**Research Assistant** at Telecommunications Institute, Technical University Berlin, November 1998-June 2004 (Directors: Prof. Thomas Sikora and Prof. Peter Noll).

- performed research on Multiple Description Coding over Error Prone Channels.
- performed research in the context of the European Network of Excellence VISNET: Networked Audiovisual Media Technologies, (<http://www.visnet-noe.org>)

**Teaching Assistant**, Telecommunications Institute, Electrical Engineering, Technical University Berlin, November 1998-November 2003.

- supervised MS students during their thesis work
- gave courses on Source Coding and Communications
- assisted lab and problem sessions
- prepared and graded exams.

**Visiting Researcher** at Information Systems Laboratory, Electrical Engineering Department, Stanford University, October 2001-April 2002 (Advisor: Prof. Bernd Girod).

- performed research on Multiple Description Video Coding.

**Visiting Researcher** at Broadband Telecommunications Center, Georgia Tech Wireless Institute, February 2000-May 2000 ( Advisor: Prof. Nikil Jayant).

- performed research on Multiple Description Video Coding.

**Researcher** in Image Processing Department, Heinrich Hertz Institute, Berlin, Germany, June 1997-October 1998 (Advisor: Prof. Jens-Rainer Ohm).

- participated in project PANORAMA (Package for New Operational Autostereoscopic Multiview Systems and Applications),

- participated in project VPID (Video Compression and Presentation for interactive Applications),
- MPEG-4 Core Experiments for Coded Representation of Multiview Video Objects.

**Research Intern**, AT&T, Istanbul, Turkey, August 1995-October 1995.

**Research Intern**, RWE, Gelsenkirchen, Germany, July 1994-October 1994.

## **PROFESSIONAL SOCIETIES**

Member of IEEE.

## **PROFESSIONAL ACTIVITIES**

Reviewer for IEEE Transactions on Circuits and Systems

Reviewer for EURASIP Image Communication

Reviewer for IEEE Transactions on Image Processing

Reviewer for Signal, Image and Video Processing

Reviewer for Turkish Journal of Electrical Engineering and Computer Sciences

Technical Program Committee Member for the Symposium ‘Software Quality and Software Development Tools’ 2010 (in Turkish)

Technical Program Committee Member for 20. IEEE Signal Processing and Communication Applications Workshop 2012 (in Turkish)

Technical Program Committee Member for 21. IEEE Signal Processing and Communication Applications Workshop 2013 (in Turkish)

Technical Committee Member for Funding Support for Techno-Enterprises by the Ministry of Science, Technology and Industry of Turkey, 2013

Technical Program Committee Member for 22. IEEE Signal Processing and Communication Applications Workshop 2014 (in Turkish)

Technical Program Committee Member for 23. IEEE Signal Processing and Communication Applications Workshop 2015 (in Turkish)

## **SELECTED HONORS**

Auszeichnung (Highest Honors) for PhD Dissertation, Technical University Berlin, December 2004.

Stanford University Engineering Tuition Fellowship, October 2001-April 2002.

Erwin Stephan Prize for outstanding studies, Technical University Berlin, July 1999.

Highest Honors List, Technical University Berlin, Germany, 1998.

Highest Honors List, Bogazici University, Istanbul, Turkey, 1996,  
(completed two Engineering majors in nine semesters).

German Academic Exchange Service Fellowship, 1996-1998.

Scholarship, Northern Electric, Istanbul, Turkey, 1995-1996.

Scholarship, Istanbul Erkek Liseliler Vakfi, Istanbul, Turkey, 1992-1996.

Highest Honors List, Istanbul Lisesi, Istanbul, Turkey, 1991.

## PERSONAL INFORMATION

Languages: Turkish (mother tongue), German (fluent), English (fluent), French (basics).

## JOURNAL ARTICLES

S. Ekmekci-Flierl P. Frossard, T. Sikora, *Unbalanced Quantized Multi-State Video Coding with Side Information*, Invited paper for Special Issue of EURASIP Journal on Applied Signal Processing, Volume 2006, Article ID 14694, 2006.

S. Ekmekci, *Encoding and Reconstruction of Incomplete 3D Video Objects*, Special Issue of IEEE Transactions on Circuits and Systems for Video Technology, vol. 10, no. 7, pp. 1198-1207, October 2000.

## CONFERENCE PUBLICATIONS

O. Sengel, S. Ekmekci-Flierl, *Multi-State Video Transmission with Network Coding*, 2018 Signal Processing and Communications Applications Conference (SIU), Izmir, Turkey, May 2018.

S. Ekmekci-Flierl, T. Sikora, *Multi-State Video Coding with Side Information*, 2005 Asilomar Conference, Monterey, CA, October 2005.

S. Ekmekci-Flierl, T. Sikora, P. Frossard, *Coding with Temporal Layers and Multiple Descriptions for Lossy Video Transmission*, International Workshop VLBV05, Sardinia, Italy, September 2005.

S. Ekmekci, P. Frossard, T. Sikora, *Distortion Estimation for Temporal Layered Video Coding*, IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP'05), Philadelphia, PA, USA, March 2005.

S. Ekmekci, T. Sikora, *Unbalanced Quantized Multi-State Video Coding: Potentials*, Picture Coding Symposium (PCS'04), San Francisco, CA, December 2004, invited paper.

Sila Ekmekci, Thomas Sikora, *Recursive Decoder Distortion Estimation Based on AR(1) Modeling for Video*, IEEE Int. Conf. on Image Processing (ICIP'04), Singapore, October 2004.

S. Ekmekci, T. Sikora, *Temporal Layered vs. Multistate Video Coding*, IS&T/SPIE's Electronic Imaging 2004, San Jose, CA, January 2004.

S. Ekmekci, T. Sikora, *Multi-State vs. Single-State Video Coding over Error-Prone Channels*, 2003 Asilomar Conference, Monterey, CA, November 2003.

S. Ekmekci, T. Sikora, *Model for Unbalanced Multiple Description Video Transmission using Path Diversity*, VCIP 2003, Lugano, Switzerland, July 2003.

S. Ekmekci, T. Sikora, *Unbalanced Quantized Multiple Description Video Transmission using Path Diversity*, IS&T/SPIE's Electronic Imaging 2003, Santa Clara, CA, January 2003.

S. Ekmekci, J.-R. Ohm, *"Incomplete 3D Representation" and View Synthesis for Video Objects Captured by Multiple Cameras*, Proceedings Picture Coding Symposium PCS '99, Portland, Oregon, USA, pages 81-86, April 1999.

J.-R. Ohm, K. Müller, S. Ekmekci, *Incomplete 3D - A New Tool for Multiview Data Representation*, IEEE IMDSP Workshop (Special Theme: 3D), Alpbach, July 1998.

## **TECHNICAL REPORTS**

J.-R. Ohm, R. Buschmann, S. Ekmekci, *Proposal for Multiple Alpha Channel Syntax in MPEG-4 Version 2*, MPEG-4 Document ISO/IEC/JTC1/SC29/WG11, MPEG98/M3971, Atlantic City, October 1998.

S. Ekmekci, *Report on Multifunctional Core Experiment M1*, MPEG-4 Document ISO/IEC/JTC1/SC29/WG11, MPEG98/M3972, Atlantic City, October 1998.

## **THESES**

*Multi-State Video Coding over Error-Prone Channels*, PhD Dissertation, Technical University Berlin, December 2004.

*Multiview Representation and Synthesis of Video Objects*, MS Thesis, Technical University Berlin, May 1998.

*Robot Path Planning Methods*, Diploma Thesis, Bogazici University, June 1996

## **INVITED LECTURES**

*Multi-State Video Coding over Error-Prone Channels*, Santa Clara University, August 2005.

*Multi-State Video Coding over Error-Prone Channels*, University of California, Irvine, April 2005.

*Multiple Description Coding using Path Diversity*, Swiss Federal Institute of Technology, December 2003.

*Multiple Description Coding using Path Diversity*, ITG Fachsitzung (Fachgruppe 3.1.2, Digitale Bildcodierung) Technical University Berlin, Berlin, Juni 2003.

*Encoding and Reconstruction of Incomplete 3D Video Objects*, Georgia Institute of Technology, Atlanta, USA, April 2000.