

## **ERDEM YORUK, Ph.D.**

Place-Date of birth: Ankara/TURKEY – 05/17/1978  
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### **CURRENT EMPLOYMENT**

2011 – present      Postdoctoral researcher in Center For Imaging Science, Johns Hopkins University  
Other Affiliations: Institute For Computational Medicine  
The Vision, Dynamics and Learning Lab  
Supervisors: Drs. Donald Geman, Laurent Younes, Rene Vidal

### **EDUCATION**

2005 – 2011      Ph.D. in Applied Mathematics and Statistics, Johns Hopkins University  
(concentration in Computational Medicine with Bioinformatics track)  
*Doctoral Dissertation Title:* “Learning Graphical Models with Limited  
Observations of High-Dimensional Data”  
Advisors: Drs. Donald Geman and Laurent Younes

2002 – 2004      MS in Electrical and Electronic Engineering, Bogazici University, Turkey  
*Master Thesis Title:* “Hand Biometrics”  
Advisor: Dr. Bülent Sankur

1997 – 2002      BS in Electrical and Electronic Engineering Bogazici University, Turkey  
*Senior Thesis Title:* “Symmetry based Face Detection”  
Advisor: Dr. Bülent Sankur

1989 – 1997      Istanbul Erkek Lisesi (Istanbuler Gymnasium)  
Istanbul, TURKEY

### **RESEARCH INTERESTS**

Generative Methods in Computer Vision, Computational Biology, Cell Signaling Networks, Machine Learning, Probabilistic Graphical Models, Bayesian Networks

## PUBLICATIONS

### Peer-Reviewed Journal Articles

- E. Yörük**, M. F. Ochs, D. Geman, L. Younes, “A comprehensive statistical model for cell signaling” *IEEE Transactions on Computational Biology and Bioinformatics*, 8(3), 592-606, 2011.
- H. Dutağacı, B. Sankur, **E. Yörük**, “A comparative analysis of global hand appearance-based person recognition,” *Journal of Electronic Imaging*, 17(1), 011018/1- 011018/19, Jan-March, 2008.
- E. Yörük**, H. Dutagaci, B. Sankur, “Hand Biometrics,” *Image and Vision Computing*, 24(5), 483-497, 2006.
- E. Yörük**, E. Konukoglu, B. Sankur, J. Darbon, “Shape-Based Hand Recognition,” *IEEE Transactions on Image Processing*, 15(7), 1803-1815, 2006.

### Book Chapters

- B. Acar, **E. Yörük**, “DT-MRI Connectivity and/or Tractography?: Two New Algorithms”, *Tensors in Image Processing and Computer Vision*, S. Aja-Fernández, R. de Luis García, D. Tao, & Li, X. (Eds.), Series: Advances in Pattern Recognition, Springer, 2009.
- H. Dutağacı, G. Fouquier, **E. Yörük**, B. Sankur, L. Likforman-Sulem, J. Darbon, “Hand Recognition,” *Guide to Biometric Reference Systems and Performance Evaluation*, D. Petrovska-Delacretaz, G. Chollet, B. Dorizzi (Eds.), pp. 89-124, Springer, 2009

### Conference Proceedings

- E. Yörük**, B. Acar, R. Bammer “A Physical Model for DT-MRI Based Connectivity Map Computation” *Lecture Notes in Computer Science*, Vol. 3749 / Part 1, pp. 213 220, Springer, 2005 (MICCAI 2005, Palm Springs, CA, USA)
- E. Yörük**, B. Acar, “Structure Preserving Regularization of DT-MRI Vector Fields By Nonlinear Anisotropic Diffusion Filtering” *Proceedings of EUSIPCO 2005*, European Signal Processing Conference, September 4-8, 2005, Antalya, Turkey
- E. Yörük**, H. Dutagaci, B. Sankur “Hand Based Biometry” *Proceedings of SPIE 2005*, January 16-20, 2005, San Jose, CA, USA
- E. Yörük**, E. Konukoglu, B. Sankur, J. Darbon, “Person Authentication Based On Hand Shape”, *Proceedings of EUSIPCO 2004*, 12<sup>th</sup> European Signal Processing Conference, September 6-10, 2004, Vienna/Austria
- E. Yörük**, C. B. Akgül, “Color Image Segmentation using PDE-based Regularization and Watershed Transformation”, *Proceedings of IEEE-SIU 2004*, IEEE 12th Signal Processing and Telecommunication Applications Conference, April 28-30, 2004, Kusadasi/Turkey
- E. Yörük**, E. Konukoglu, B. Sankur, J. Darbon, “Shape Based Hand Recognition”, *Proceedings of IEEE-SIU 2004*, IEEE 12th Signal Processing and Telecommunication Applications Conference, April 28-30, 2004 Kusadasi/Turkey (ranked first in student paper contest)

## SCHOLARSHIPS & AWARDS

2009 – 2010	H. Cohen Fellowship
2006 – 2011	NSF Graduate Research Assistantship at the Center of Imaging Science (CIS), Johns Hopkins University, Baltimore, MD.
2005 – 2006	Teaching Assistantships – Johns Hopkins University

2005 – 2006	TUBITAK – Scientific and Research Foundation of Turkey, PhD scholarship
2004	<i>Alper Atalay</i> Best Student Paper Award for the paper entitled <i>Shape Based Hand Recognition</i> in IEEE-SIU 2004
2002	Boğaziçi University Dean's Honor Roll
2000 – 2002	<i>Alper Atalay</i> fellowship
1998 – 2002	<i>Istanbul Erkek Liseliler Vakfı</i> scholarship
1997 – 2002	Boğaziçi University scholarship
1997 – 2002	<i>ERDEMİR Vakfı</i> scholarship
1997	DAAD <i>Deutscher Akademischer Austauschdienst</i> scholarship

## GRADUATE RESEARCH EXPERIENCE

2006 – 2011	Johns Hopkins University – Center for Imaging Science (CIS: <a href="http://cis.jhu.edu/">http://cis.jhu.edu/</a> ) Advisors: Dr. Donald Geman, Dr. Laurent Younes
2004 – 2005	Boğaziçi University – Department of Electrical & Electronics Engineering Volumetric Analysis & Visualization Group (VAVLAB: <a href="http://www.vavlab.ee.boun.edu.tr/">http://www.vavlab.ee.boun.edu.tr/</a> ) Advisor: Dr. Burak Acar
2002 – 2005	Boğaziçi University – Department of Electrical & Electronics Engineering Signal & Image Processing Laboratory (BUSIM - <a href="http://busim.ee.boun.edu.tr/">http://busim.ee.boun.edu.tr/</a> ) Advisor: Dr. Bulent Sankur

## TEACHING EXPERIENCE

### Johns Hopkins University – Department of Applied Mathematics and Statistics

Spring 2008	AMS640 Machine Learning
Spring 2006	AMS111 Statistical Analysis
Fall 2005	AMS291 Linear Algebra and Differential Equations
Fall 2005	AMS303 Differential Equations

### Bogazici University - Department of Electrical and Electronic Engineering

Fall 2002	EE210 Electric Circuits 1
Fall 2003/04	EE479 Communication Laboratories
Fall 2003/04	EE497 Java Programming and EE677 Detection Estimation Theory
Spring 2003/04/05	EE202 Electric Circuits 2, EE574 Special Topics in Image Processing

## PROFESSIONAL WORK EXPERIENCE

2001	Internship at Repas AEG Automation GmbH, Istanbul - Turkey
2001	Organizing crew in 23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Istanbul – Turkey

2001	Internship at GVZ Speech Technologies and Software Services Co., Istanbul -Turkey
2000	Internship at Electronic Workshop of Erdemir (Eregli) Iron & Steel Co., Zonguldak - Turkey
1999	Organizing crew in OSCE Istanbul Summit, Istanbul – Turkey
1999	Internship at Repas AEG Automation GmbH, Dreieich-Germany

## COMPUTER SKILLS

<i>Programming</i>	C/C++, Java, Matlab, Mathematica, LaTeX, MS Office, Labview
<i>Electronic Design</i>	Motorola 8-bit Microcontroller Assemblers, Electronic Workbench 5.0, Microsim Designlab 8.0, Spice

## LANGUAGES

Turkish	Native
English	Fluent
German	Fluent (with <i>Sprachdiplom</i> )
French	Beginner

## RECOMMENDATIONS

Dr. Donald Geman	<a href="mailto:geman@cis.jhu.edu">geman@cis.jhu.edu</a> Johns Hopkins University Department of Applied Mathematics and Statistics & Center for Imaging Science Clark Hall 302A 3400 North Charles Street Baltimore, MD 21218-2682
Dr. Laurent Younes	<a href="mailto:laurent.younes@jhu.edu">laurent.younes@jhu.edu</a> Johns Hopkins University Department of Applied Mathematics and Statistics & Center for Imaging Science Clark Hall 324C 3400 North Charles Street Baltimore, MD 21218-2682
Dr. Rene Vidal	<a href="mailto:rvidal@cis.jhu.edu">rvidal@cis.jhu.edu</a> Johns Hopkins University Department of Biomedical Engineering Clark Hall 302B 3400 North Charles Street Baltimore, MD 21218-2682