

## Prof. ZEHRA SİBEL TARI

### Personal Information

Email: stari@metu.edu.tr

### Education Information

Doctorate, Northeastern University, United States Of America 1993 - 1997

### Dissertations

Doctorate, Shape Analysis without Segmentation, Northeastern University, 1997

### Research Areas

Computer Vision, Artificial Intelligence, Computer Learning and Pattern Recognition

### Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2009 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2003 - 2009

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2001 - 2003

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Engineering Sciences, 1998 - 2001

Research Assistant, Northeastern University, 1992 - 1997

### Advising Theses

TARI Z. S. , Source-aggregated-poisson with applications to groupwise shape analysis and mesh segmentation, Doctorate, M.GENÇTAV(Student), 2018

TARI Z. S. , CAN T. , Shape models based on elliptic pdes, associated energies, and their applications in 2d and 3d, Doctorate, A.GENÇTAV(Student), 2018

TARI Z. S. , ULUSOY İ. , Object recognition and segmentation via shape models, Doctorate, M.BURAK(Student), 2016

TARI Z. S. , An Escher aware pattern analysis: Symmetry beyond symmetry groups, Doctorate, V.ADANOVA(Student), 2015

TARI Z. S. , Global skeleton, Post Graduate, M.GENÇTAV(Student), 2011

TARI Z. S. , Smoothing and differentiation of dynamic data, Post Graduate, F.TİTREK(Student), 2010

TARI Z. S. , Part embedding for shape grammars, Doctorate, H.YALIM(Student), 2010

TÖNÜK E. , TARI Z. S. , Verification and Matlab Implementation of the Inverse Dynamic Model of METU Gait Analysis System, Post Graduate, K.Savaş(Student), 2008

TARI Z. S. , Category knowledge, skeleton-based shape matching and shape classification, Doctorate, İ.AYKUT(Student),

2008

TARI Z. S., Simultaneous bottom-up/top-down processing in early and mid level vision, Doctorate, M.ERKUT(Student), 2008

TARI Z. S., Human motion analysis via axis based representations, Post Graduate, S.ERDEM(Student), 2007

TARI Z. S., Edge preserving smoothing with directional consistency, Post Graduate, A.SANCAR(Student), 2007

TARI Z. S., Context sensitive matching of two shapes, Post Graduate, E.BAŞESKİ(Student), 2006

TARI Z. S., Disconnected skeletons for shape recognition, Post Graduate, Ç.ASLAN(Student), 2005

TARI Z. S., Cognitive aspects of image zooming, Post Graduate, G.ÖNCÜL(Student), 2002

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **Complexity of Shapes Embedded in Z with a Bias towards Squares**  
ARSLAN M. F., Tari S.  
IEEE Transactions on Image Processing, vol.29, pp.8870-8879, 2020 (Journal Indexed in SCI Expanded)
- **Analysis of Planar Ornament Patterns via Motif Asymmetry Assumption and Local Connections**  
Adanova V., TARI Z. S.  
JOURNAL OF MATHEMATICAL IMAGING AND VISION, vol.61, pp.269-291, 2019 (Journal Indexed in SCI)
- **Discrepancy: Local/Global Shape Characterization with a Roundness Bias**  
Genctav A., TARI Z. S.  
Journal of Mathematical Imaging and Vision, vol.61, pp.160-171, 2019 (Journal Indexed in SCI Expanded)
- **A probabilistic sparse skeleton based object detection**  
Altinoklu B., ULUSOY İ., Tari S.  
Pattern Recognition Letters, vol.83, pp.243-250, 2016 (Journal Indexed in SCI Expanded)
- **Guest Editorial: Shape Analysis Beyond the Eikonal Equation**  
TARI Z. S., Vese L., Rangarajan A.  
JOURNAL OF MATHEMATICAL IMAGING AND VISION, vol.55, pp.151-152, 2016 (Journal Indexed in SCI)
- **NonLocal via Local-NonLinear via Linear: A New Part-coding Distance Field via Screened Poisson Equation**  
Genctav M., Genctav A., TARI Z. S.  
JOURNAL OF MATHEMATICAL IMAGING AND VISION, vol.55, pp.242-252, 2016 (Journal Indexed in SCI)
- **Beyond symmetry groups: A grouping study on Escher's Euclidean ornaments**  
Adanova V., Tari S.  
Graphical Models, vol.83, pp.15-27, 2016 (Journal Indexed in SCI Expanded)
- **Landmarks inside the shape: Shape matching using image descriptors**  
Guler R. A., TARI Z. S., ÜNAL G.  
PATTERN RECOGNITION, vol.49, pp.79-88, 2016 (Journal Indexed in SCI)
- **The Role of Diffusion in Figure Hunt Games**  
Diebold J., TARI Z. S., Cremers D.  
JOURNAL OF MATHEMATICAL IMAGING AND VISION, vol.52, pp.108-123, 2015 (Journal Indexed in SCI)
- **A robust method for scale independent detection of curvature-based criticalities and intersections in line drawings**  
Keles H. Y., TARI Z. S.  
PATTERN RECOGNITION, vol.48, pp.140-155, 2015 (Journal Indexed in SCI)
- **From a Non-Local Ambrosio-Tortorelli Phase Field to a Randomized Part Hierarchy Tree**  
TARI Z. S., Genctav M.  
JOURNAL OF MATHEMATICAL IMAGING AND VISION, vol.49, pp.69-86, 2014 (Journal Indexed in SCI)
- **Screened Poisson Hyperfields for Shape Coding**  
Guler R. A., TARI Z. S., ÜNAL G.  
SIAM JOURNAL ON IMAGING SCIENCES, vol.7, pp.2558-2590, 2014 (Journal Indexed in SCI)
- **Weighted shapes for embedding perceived wholes**

Keles H. Y. , Özkar Kabakçioğlu M., TARI Z. S.

ENVIRONMENT AND PLANNING B-PLANNING & DESIGN, vol.39, pp.360-375, 2012 (Journal Indexed in SSCI)

● **A similarity-based approach for shape classification using Asian skeletons**

Erdem A., Tari S.

● PATTERN RECOGNITION LETTERS, vol.31, pp.2024-2032, 2010 (Journal Indexed in SCI)

● **Embedding shapes without predefined parts**

Keles H. Y. , Ozkar M., TARI Z. S.

● ENVIRONMENT AND PLANNING B-PLANNING & DESIGN, vol.37, pp.664-681, 2010 (Journal Indexed in SSCI)

● **Dissimilarity between two skeletal trees in a context**

Baseski E., Erdem A., TARI Z. S.

● PATTERN RECOGNITION, vol.42, pp.370-385, 2009 (Journal Indexed in SCI)

● **Mumford-Shah Regularizer with Contextual Feedback**

Erdem E., TARI Z. S.

● JOURNAL OF MATHEMATICAL IMAGING AND VISION, vol.33, pp.67-84, 2009 (Journal Indexed in SCI)

● **Disconnected Skeleton: Shape at Its Absolute Scale**

Aslan C., Erdem A., Erdem E., Tari S.

● IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, vol.30, pp.2188-2203, 2008 (Journal Indexed in SCI)

● **Nested local symmetry set**

Tari S., Shah J.

● COMPUTER VISION AND IMAGE UNDERSTANDING, vol.79, pp.267-280, 2000 (Journal Indexed in SCI)

● **An integrated approach to computational vision - The edge strength function and the nested symmetries**

Tari S.

● ADVANCES IN IMAGING AND ELECTRON PHYSICS, VOL 111, vol.111, pp.327-366, 1999 (Journal Indexed in SCI)

● **Extraction of shape skeletons from grayscale images**

Tari Z. S. , Shah J., Pien H.

● COMPUTER VISION AND IMAGE UNDERSTANDING, vol.66, pp.133-146, 1997 (Journal Indexed in SCI)

● **SIMULATION CONCEPTS FOR INFORMATION-SYSTEM**

MOURANT R., TARI S.

COMPUTERS & INDUSTRIAL ENGINEERING, vol.25, pp.541-544, 1993 (Journal Indexed in SCI)

## Articles Published in Other Journals

● **A Non-Structural Representation Scheme for Articulated Shapes**

Genctav A., TARI Z. S.

JOURNAL OF IMAGING, vol.4, 2018 (Journal Indexed in ESCI)

## Books & Book Chapters

● **Shape Patterns in Digital Fabrication: A Survey on Negative Poisson's Ratio Metamaterials**

YILMAZ B., ADANOVA V., ACAR R., TARI Z. S.

in: Research in Shape Analysis, WISH2, Genctav, A., Leonard, K., Tari, S., Hubert, E., Morin, G., El-Zehiry, N., Chambers, E. (Eds.), Editor, SPRINGER, CHAM, pp.161-172, 2018

● **Multi-parameter Mumford-Shah Segmentation**

GENCTAV M., TARI Z. S.

in: Research in Shape Analysis, WISH2, Genctav, A., Leonard, K., Tari, S., Hubert, E., Morin, G., El-Zehiry, N., Chambers, E. (Eds.), Editor, SPRINGER, CHAM, pp.133-142, 2018

● **Adaptive Deflation Stopped by Barrier Structure for Equating Shape Topologies Under Topological**

## Noise

GENCTAV A., TARI Z. S.

in: Research in Shape Analysis, WISH2, Genctav, A., Leonard, K., Tari, S., Hubert, E., Morin, G., El-Zehiry, N., Chambers, E. (Eds.), Editor, SPRINGER, CHAM, pp.95-111, 2018

### Ornament Analysis with the Help of Screened Poisson Shape Fields

TARI Z. S.

in: Perspectives in Shape Analysis, Michael Breuß Alfred Bruckstein Petros Maragos Stefanie Wuhrer, Editor, SPRINGER, pp.3-13, 2016

### Part-Aware Distance Fields for Easy Inbetweening in Arbitrary dimensions

TARI Z. S.

in: RESEARCH IN SHAPE MODELING, K. Leonard, S. Tari, Editor, SPRINGER, pp.27-39, 2015

### Automatic Prior Shape Selection for Image Segmentation

GUO W., QIN J., TARI Z. S.

in: RESEARCH IN SHAPE MODELING, K. LEONARD, S. TARI, Editor, SPRINGER, pp.1-8, 2015

### Revisiting Skeletons from Natural Images

ERDEM M. E. , TARI Z. S.

in: RESEARCH IN SHAPE MODELING, K. Leonard, S. Tari, Editor, SPRINGER, pp.101-112, 2015

### Fluctuating distance fields, parts, three-partite skeletons

TARI Z. S.

in: Innovations in Shape Analysis, BREUSS M, BRUCKSTEIN A, MARAGOS P, Editor, Springer Berlin Heidelberg, pp.439-466, 2013

## Refereed Congress / Symposium Publications in Proceedings

### Veri Analizi Araçları Kullanarak Eklemlı Şekilleri Şekil Bileşenlerini Bulmadan Temsil Etme

GENCTAV A., TARI Z. S.

VI. International GAP Engineering Congress, 8 - 10 November 2018

### Photoshop plug-ins supporting visual design

BAL BOZKURT G., TARI Z. S.

26th Signal Processing and Communications Applications Conference, 2 - 05 May 2018

### A Product Shape Congruity Measure via Entropy in Shape Scale Space

GENÇTAV A., TARI Z. S.

EUSIPCO Workshops, Greece, 28 August - 02 September 2017

### Stress Distribution Based Partitioning of Helmets for 3 D Printing

BAŞARA G., TARI İ., TARI Z. S.

ASME International Mechanical Engineering Conference and Exhibition, Phoenix, United States Of America, 11 - 17 November 2016

### Extracting Unit Cells from Tilings with Color Symmetries Case of Counterchange Patterns

ADANOVA V., TARI Z. S.

Bridges 2016, 9 - 13 August 2016

### NonLocal via Local NonLinear via Linear

GENÇTAV M., GENÇTAV A., TARI Z. S.

SIAM Imaging Science 2016, 23 - 26 May 2016

### 3D Shape Correspondence Under Topological Noise

Genctav A., SAHİLLİOĞLU Y., TARI Z. S.

24th Signal Processing and Communication Application Conference (SIU), Zonguldak, Turkey, 16 - 19 May 2016, pp.401-404

### DIFFUSION IS UBIQUITOUS A VOLUME DECOMPOSITION APPLICATION FOR 3D PRINTING

TARI Z. S. , GENCTAV A., GENCTAV M.

Proceedings of the 1st Thermal and Fluid Engineering Summer Conference, TFESC, United States Of America, 9 - 12

- August 2015, pp.1-4  
**SHREC 15 Track Non rigid 3D Shape Retrieval**  
 LIAN Z., ZHANG Z., S C., ELNAGHY H. E. , SANA J. E. , FURUYA T., GIACHETTI A., GÜLER A., LAI L., LI C., et al.  
 Eurographics Workshop on 3D Object Retrieval, 2 - 03 May 2015
- **Beyond symmetry groups: A grouping study on Escher's euclidean ornaments**  
 Adanova V., Tari S.  
 SIGGRAPH Asia 2014 Workshop on Creative Shape Modeling and Design, SA 2014, Shenzhen, China, 3 - 06  
 December 2014
- **Wimmelbild analysis with approximate curvature coding distance images**  
 Bergbauer J., Tari S.  
 4th International Conference on Scale Space and Variational Methods in Computer Vision, SSVN 2013, Leibnitz,  
 Austria, 2 - 06 June 2013, pp.489-500
- **Two Way Coupling of Lagrangian and Eulerian Governing Equations for Particles in Incompressible  
 Fluids**  
 TARI İ., TARI Z. S.  
 SIAM Annual Meeting CP23, San Diego, United States Of America, 8 - 12 July 2013
- **Automatic Prior Shape Selection for Image Segmentation**  
 Guo W., Qin J., TARI Z. S.  
 Research in Shape Modeling, Los-Angeles, Chile, 01 July 2013, vol.1, pp.1-8
- **Revisiting Skeletons from Natural Images**  
 Erdem E., TARI Z. S.  
 Research in Shape Modeling, Los-Angeles, Chile, 01 July 2013, vol.1, pp.101-113
- **Part-Aware Distance Fields for Easy Inbetweening in Arbitrary Dimensions**  
 TARI Z. S.  
 Research in Shape Modeling, Los-Angeles, Chile, 01 July 2013, vol.1, pp.27-39
- **Top down visual search in Wimmelbild**  
 BERGBAUER J., TARI Z. S.  
 Human Vision and Electronic Imaging XVIII, Burlingame, California, USA, 3 - 07 February 2013
- **From a Modified Ambrosio-Tortorelli to a Randomized Part Hierarchy Tree**  
 TARI Z. S. , Genctav M.  
 3rd International Conference on Scale Space and Variational Methods in Computer Vision, Ein Gedi, Israel, 29 May  
 - 02 June 2011, vol.6667, pp.267-278
- **Components of the Shape Revisited**  
 TARI Z. S. , BURGETH B., TARI İ.  
 2010 AAAI Spring Symposium Series, Palo Alto, United States Of America, 22 - 24 March 2010
- **Revisiting Shape Embedding**  
 Keles H. Y. , Ozkar M., TARI Z. S.  
 27th Conference on Education and Research in Computer Aided Architectural Design in Europe, İstanbul, Turkey,  
 16 - 19 September 2009, pp.229-236
- **Hierarchical Shape Decomposition via Level Sets**  
 TARI Z. S.  
 9th International Symposium on Mathematical Morphology, Groningen, Netherlands, 24 - 27 August 2009,  
 vol.5720, pp.215-225
- **Modified Laplacians for shape analysis**  
 TARI Z. S. , BURGETH B., TARI İ.  
 International Symposium on Mathematical Morphology, Groningen, Netherlands, 24 - 27 August 2009
- **Coarse-to-Fine Matching of Shapes Using Disconnected Skeletons by Learning Class-Specific  
 Boundary Deformations**  
 Erdem A., TARI Z. S.  
 7th International Workshop on Graph-Based Representations in Pattern Recognition, Venice, Italy, 26 - 28 May  
 2009, vol.5534, pp.21-22

● **SEGMENTATION USING THE EDGE STRENGTH FUNCTION AS A SHAPE PRIOR WITHIN A LOCAL DEFORMATION MODEL**

Erdem E., Tari S., Vese L.

16th IEEE International Conference on Image Processing, Cairo, Egypt, 7 - 10 November 2009, pp.2989-2990

● **Mumford-shah regularizer with spatial coherence**

Erdem E., Sancar-Yilmaz A., Tari S.

1st International Conference on Scale Space and Variational Methods in Computer Vision, Ischia, Italy, 30 May - 02 June 2007, vol.4485, pp.545-547

● **Articulated motion analysis via axis-based representation**

Erdem S., Tari S.

Conference on Intelligent Robots and Computer Vision XXV - Algorithms, Techniques, and Active Vision, Massachusetts, United States Of America, 9 - 11 September 2007, vol.6764

● **Senior year thermal design course elective or mandatory restricted elective**

TARI İ., TARI Z. S.

ASME International Mechanical Engineering Conference and Exhibition, Chicago, United States Of America, 5 - 10 November 2006

● **Edge strength functions as shape priors in image segmentation**

Erdem E., Erdem A., Tari S.

5th International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition, EMMCVPR 2005, St. Augustine, FL, United States Of America, 9 - 11 November 2005, pp.490-502

● **An axis-based representation for recognition**

Aslan C., Tari S.

10th IEEE International Conference on Computer Vision (ICCV 2005), Beijing, China, 17 - 20 October 2005, pp.1339-1346

● **Coloring 3D symmetry set: perceptual meaning and significance in 3D**

Tari S.

Proceedings of the 1999 Visual Information Processing VIII, Orlando, FL, USA, 06 April 1999, vol.3716, pp.105-109

● **Local symmetries of shapes in arbitrary dimension**

Tari S., Shah J.

Proceedings of the 1998 IEEE 6th International Conference on Computer Vision, Bombay, India, 4 - 07 January 1998, pp.1123-1127

● **Multiscale method for feature preserving compression**

Tari S., Liang P.

Conference on Nonlinear Image Processing IX, San-Jose, Costa Rica, 26 - 27 January 1998, vol.3304, pp.316-322

● **Direct gray scale ridge reconstruction in fingerprint images**

Domeniconi C., Tari S., Liang P.

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 98), Washington, United States Of America, 12 - 15 May 1998, pp.2941-2944

● **Simultaneous segmentation of images and shapes**

Tari S., Shah J.

Conference on Vision Geometry VI, California, United States Of America, 28 - 29 July 1997, vol.3168, pp.88-94

● **Computationally efficient shape analysis via level sets**

Tari Z. S. , Shah J., Pien H.

Proceedings of the 1996 Workshop on Mathematical Methods in Biomedical Image Analysis, San-Francisco, Costa Rica, 21 - 22 June 1996, pp.234-243

## Citations

Total Citations (WOS):321

h-index (WOS):9