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Education

PhD, Computer Science, Koç University, 2012.
MS, Computer Science, University of Florida, 2008.
MS, Computer Science, Koç University, 2006.
BS, Computer Science, Bilkent University, 2004.

Professional Experience

Prof., Computer Engineering Dept., Middle East Technical University, 12/2022 – present.
Assoc. Prof., Computer Engineering Dept., Middle East Technical University, 03/2017 – 12/2022.
Asst. Prof., Computer Engineering Dept., Middle East Technical University, 09/2014 – 03/2017.
Postdoctoral Researcher, Computer Science, University of Pennsylvania (UPenn), 12/2012 – 03/2014.
Visiting Researcher, Computer Science, Koç University, 03/2014 – 09/2014.
Intern, AMD/ATI, Orlando, FL, 06/2007 – 12/2007.
Vice Chairman, Computer Engineering Dept., Middle East Technical University, 06/2016 – 03/2022.

Fields of Research Interest

Computer Graphics, Digital Geometry Processing.

Publications

Journal Articles

1. M. Yazgan and Y. Sahilliođlu, A Partition Based Method for Spectrum-Preserving Mesh Simplification, *IEEE Transactions on Visualization and Computer Graphics*, 2024.
2. T. Sivri and Y. Sahilliođlu, A Data-Centric Unsupervised 3D Mesh Segmentation Method, *The Visual Computer*, 2023.
3. O. Ergün and Y. Sahilliođlu, 3D point cloud classification with ACGAN-3D and VACWGAN-GP, *Turkish Journal of Electrical Eng. and Computer Sciences*, Vol. 31, No. 2, 381-395, 2023.

4. Y. Sahillioğlu and D. Horsman, Augmented Paths and Reodesics for Topologically-Stable Matching, *ACM Transactions on Graphics (presented at SIGGRAPH Asia)*, Vol. 42, No. 2, 1-15, 2022.
5. A. Akman, Y. Sahillioğlu, M. Sezgin, Deep Generation of 3D Articulated Models and Animations from 2D Stick Figures, *Computers & Graphics*, Vol. 109, 65-74, 2022.
6. Ç. Seylan and Y. Sahillioğlu, 3D Shape Deformation Using Stick Figures, *Computer-Aided Design*, Vol. 151, 103352, 2022.
7. M. Aydınlar and Y. Sahillioğlu, Part-Based Data-Driven 3D Shape Interpolation, *Computer-Aided Design*, Vol. 136, 103027, 2021.
8. Y. Sahillioğlu and L. Kavan, Scale-Adaptive ICP, *Graphical Models*, Vol. 116, 101113, 2021.
9. O. Taştan and Y. Sahillioğlu, Human Body Reconstruction from Limited Number of Points, *Computer Animation and Virtual Worlds*, Vol. 32, No. 5, e1995, 2021.
10. Y. Sahillioğlu, Recent advances in shape correspondence, *The Visual Computer*, Vol. 36, 1705-1721, 2020.
11. E. Irmak and Y. Sahillioğlu, 3D Indirect Shape Retrieval Based on Hand Interaction, *The Visual Computer*, Vol. 36, No. 1, 5-17, 2020.
12. L. Mert, U. Yaman, Y. Sahillioğlu, A fabrication-oriented remeshing method for auxetic pattern extraction, *Turkish J. of Elec. Eng. and Computer Science*, Vol. 28, No. 3, 1535-1548, 2020.
13. B. Yalçiner and Y. Sahillioğlu, Voxel transformation: scalable scene geometry discretization for global illumination, *Journal of Real-Time Image Processing*, 1-12, 2019.
14. Ç. Seylan and Y. Sahillioğlu, 3D Skeleton Transfer for Meshes and Clouds, *Graphical Models*, Vol. 105, 2019.
15. Y. Sahillioğlu, A Genetic Isometric Shape Correspondence Algorithm with Adaptive Sampling, *ACM Transactions on Graphics (Presented at SIGGRAPH Asia)*, Vol. 37, No. 5, 175, 2018.
16. A. Abbasi, S. Kalkan, Y. Sahillioğlu, Deep 3D Semantic Scene Extrapolation, *The Visual Computer*, Vol. 35, No. 2, 271-279, 2018.
17. D. Pickup, J. Liu, X. Sun, P. Rosin, R. Martin, Z. Cheng, Z. Lian, S. Nie, L. Jin, G. Shamaï, Y. Sahillioğlu, L. Kavan, An Evaluation of Canonical Forms for Non-Rigid 3D Shape Retrieval, *Graphical Models*, Vol. 97, 17-29, 2018.
18. Y. Sahillioğlu and M. Sezgin, Sketch-based Articulated 3D Shape Retrieval, *IEEE Computer Graphics and Applications*, Vol. 37, No. 6, 88-101, 2017.
19. Y. Sahillioğlu, A Marching Algorithm for Isosurface Extraction from Face-Centered Cubic Lattices, *Turkish Journal of Electrical Eng. and Computer Sciences*, Vol. 25, No. 3, 2501-2512, 2017.
20. Y. Sahillioğlu and L. Kavan, Detail-preserving Mesh Unfolding for Non-rigid Shape Retrieval, *ACM Transactions on Graphics (Presented at SIGGRAPH)*, Vol. 35, No. 3, 27, 2016.
21. Y. Sahillioğlu, A shape deformation algorithm for constrained multidimensional scaling, *Computers & Graphics*, Vol. 53, 156-165, 2015.
22. Y. Sahillioğlu and L. Kavan, Skuller: A Volumetric Shape Registration Algorithm for Modeling Skull Deformities, *Medical Image Analysis*, Vol. 23, No. 1, 15-27, 2015.

23. Y. Sahillioğlu and Y. Yemez, Multiple Shape Correspondence by Dynamic Programming Approximation, *Computer Graphics Forum (Proc. PG)*, Vol. 33, No. 7, 121-130, 2014.
24. Y. Sahillioğlu and Y. Yemez, Partial 3D Correspondence from Shape Extremities, *Computer Graphics Forum*, Vol. 33, No. 6, 63-76, 2014.
25. Y. Sahillioğlu and Y. Yemez, Coarse-to-Fine Isometric Shape Correspondence by Tracking Symmetric Flips, *Computer Graphics Forum*, Vol. 32, No. 1, 177-189, 2013.
26. Y. Sahillioğlu and Y. Yemez, Scale Normalization for Isometric Shape Matching, *Computer Graphics Forum (Proc. PG)*, Vol. 31, No. 7, 2233-2240, 2012.
27. Y. Sahillioğlu and Y. Yemez, Minimum-Distortion Isometric Shape Correspondence Using EM Algorithm, *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, Vol. 34, No. 11, 2203-2215, 2012.
28. Y. Sahillioğlu and Y. Yemez, Coarse-to-Fine Combinatorial Matching For Dense Isometric Shape Correspondence, *Computer Graphics Forum (Proc. SGP)*, Vol. 30, No. 5, 1461-1470, 2011.
29. Y. Sahillioğlu and Y. Yemez, Coarse-to-Fine Surface Reconstruction from Silhouettes and Range Data Using Mesh Deformation, *Computer Vision and Image Understanding (CVIU)*, Vol. 114, 334-348, 2010.
30. Y. Yemez and Y. Sahillioğlu, Shape from Silhouette Using Topology-Adaptive Mesh Deformation, *Pattern Recognition Letters*, Vol. 30, 1198-1207, 2009.
31. Y. Sahillioğlu and Y. Yemez, A Surface Deformation Framework for 3D Shape Recovery, Lecture notes in Computer Science (MCRS), Vol. 4105, 570-577, 2006.

Peer-Reviewed Conference Papers

1. A. Akman, Y. Sahillioğlu, M. Sezgin, Generation of 3D Human Models and Animations Using Simple Sketches, *Graphics Interface*, 2020.
2. R. Dyke, C. Stride, ..., Y. Sahillioğlu, ..., J. Yang, SHREC'19: Shape Correspondence with Isometric and Non-Isometric Deformations, *Proc. of Eurographics Workshop on 3D Object Retrieval (3DOR)*, 2019.
3. Y. Sahillioğlu and M. Aydınlılar, Shape Interpolation via Multiple Curves, *Proc. of Pacific Graphics Posters*, 9-10, 2018.
4. L. Cosmo, E. Rodola, M. M. Bronstein, A. Torsello, D. Cremers, Y. Sahillioğlu, SHREC'16: Partial Matching of Deformable Shapes, *Proc. of Eurographics Workshop on 3D Object Retrieval (3DOR)*, 2016.
5. Z. Lahner, E. Rodola, M. M. Bronstein, D. Cremers, O. Burghard, L. Cosmo, A. Dieckmann, R. Klein, Y. Sahillioğlu, SHREC'16: Matching of Deformable Shapes with Topological Noise, *Proc. of Eurographics Workshop on 3D Object Retrieval (3DOR)*, 2016.
6. A. Genctav, Y. Sahillioğlu, and S. Tari, 3D shape correspondence under topological noise, *IEEE Conference on Signal Processing and Communications Applications (SIU)*, 401-404, 2006.
7. L. Rossetto, I. Giangreco, C. Tanase, H. Schuldt, O. Seddati, S. Dupont, M. Sezgin, and Y. Sahillioğlu, iAutoMotion - an Autonomous Content-based Video Retrieval Engine, *Intl Conference on MultiMedia Modeling*, 383-387, 2016.
8. L. Rossetto, I. Giangreco, S. Heller, C. Tanase, H. Schuldt, O. Seddati, S. Dupont, M. Sezgin, O. C. Altiok, and Y. Sahillioğlu, IMOTION - Searching for Video Sequences using Multi-Shot Sketch Queries, *Intl Conference on MultiMedia Modeling*, 377-382, 2016.

9. L. Rossetto, I. Giangreco, H. Schuldt, S. Dupont, O. Seddati, M. Sezgin, and Y. Sahillioğlu, IMOTION-Content-Based Video Retrieval Engine, *Intl Conference on MultiMedia Modeling*, 255-260, 2015.
10. Y. Sahillioğlu and Y. Yemez, 3D Shape Correspondence by Isometry-Driven Greedy Optimization, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 453-458, 2010.
11. Y. Sahillioğlu, Triangulation-free 3D Reconstruction from LiDAR Data, *International Conference on Computer Graphics & Virtual Reality (CGVR)*, 27-32, 2010.
12. Y. Sahillioğlu and Y. Yemez, 3D Isometric Shape Correspondence, *IEEE Conference on Signal Processing and Communications Applications (SIU)*, 5-8, 2010 (Best Paper Award).
13. Y. Sahillioğlu, 3D Correspondence by Breadth-First Search Frontiers, *International Conference on Computer Graphics & Virtual Reality (CGVR)*, 203-207, 2009.
14. Y. Sahillioğlu, Y. Yemez, and V. Skala, 3D Shape Recovery and Tracking from Multi-Camera Video Sequences via Surface Deformation, *IEEE Conference on Signal Processing and Communications Applications (SIU)*, 1-4, 2006.
15. Y. Sahillioğlu and B. Özgüç, Hair Motion Simulation, *International Symposium on Computer and Information Sciences (ISCIS)*, 126-135, 2004.

Theses

1. Y. Sahillioğlu, *Algorithms for 3D Isometric Shape Correspondence*, PhD thesis, Koç University, 2012 (Koç University Graduate Studies Excellence Award).
2. Y. Sahillioğlu, *A Surface Deformation Framework for 3D Shape Recovery*, MS thesis, Koç University, 2006.

Supervised Theses

1. M. Yazgan, *A Partition Based Method for Spectrum-Preserving Mesh Simplification*, MS thesis, METU, 2022.
2. O. Mete, *A Recursive Technique for Filling Holes in 3D Triangular Meshes*, MS thesis, METU, 2022.
3. O. Ergün, *3D Point Cloud Classification With GANS: ACGAN and VACWGAN-GP*, MS thesis, METU, 2022.
4. Ç. Seylan, *Curve-Skeleton and Mesh Transfer Between Shapes*, PhD thesis, METU, 2021.
5. F. Küçükdemir, *3D Indoor Scene Segmentation Using Consensus Clustering*, MS thesis, METU, 2020.
6. İ. Sever, *Mesh Segmentation from Sparse Face Labels Using Graph Convolutional Neural Networks*, MS thesis, METU, 2020.
7. E. Perek, *Supervised Mesh Segmentation for 3D Objects with Graph Convolutional Neural Networks*, MS thesis, METU, 2019.
8. O. Taştan, *Frankenstein3D: Human Body Reconstruction for Limited Number of Points*, MS thesis, METU, 2019.
9. E. Bayyurt, *Designing a Game Development Framework for Role Playing Games*, MS thesis, METU, 2019.
10. M. Aydınlılar, *Part-Based Data-Driven Shape Interpolation*, MS thesis, METU, 2018.
11. A. Abbasi, *Deep 3D Semantic Scene Extrapolation*, MS thesis, METU, 2018.

12. L. Mert, *Extracting Auxetic Patterns from Meshes for 3D Printing*, MS thesis, METU, 2018.
13. T. Doğan, *A Novel Encoding Pluggable Lossless Data Compression Algorithm*, MS thesis, METU, 2018.
14. E. Irmak, *3D Indirect Shape Retrieval Based on Hand Interaction*, MS thesis, METU, 2017.
15. B. Yalçiner, *Dynamic Voxelization to Aid Illumination of Real-Time Scenes*, MS thesis, METU, 2016.
16. Ş. Özcan, *A Scalable evolutionary algorithm for solving the one-dimensional bin packing problem on GPU using CUDA*, MS thesis, METU, 2015.

Citations

Citations: 834, h-index: 16 (Google Scholar, as of 13.12.2023).

Professional Activities

Invited Talks

1. Mesh Processing, *METU Computer Engineering Image Lab Seminars*, Ankara, November 2020.
2. Discrete Optimization for Shape Matching, *TOBB Computer Engineering Dept. Seminars*, Ankara, December 2018.
3. State of the Art on 3D Printing, *Eurasia Graphics Workshop*, Gaziantep, November 2018.
4. Range Queries and Square Root Complexity, *METU Computer Engineering Dept. Seminars*, Ankara, July 2018.
5. 3D Canonical Pose Computation, *Nanyang Technological University, Computer Science Dept.*, Singapore, August 2016.
6. Skuller: A Volumetric Shape Registration Algorithm for Modeling Skull Deformities, *University of Central Florida, Computer Science Dept.*, Orlando, USA, November 2015.
7. Interactive Deformation Tools for Virtual Medicine, *University of Florida, Computer Science Dept.*, Gainesville, USA, November 2015.
8. Dimensionality Reduction, *University of Pennsylvania, Computer Science Dept.*, Philadelphia, USA, November 2013.
9. Reconstruction, Matching, and Registration of 3D Shapes, *Bilkent University, Computer Science Dept.*, Ankara, Turkey, June 2013.
10. 3D Isometric Shape Correspondence, *Microsoft Research, Interactive 3D Technologies Group*, Cambridge, UK, February 2013.

Reviewer

1. ACM SIGGRAPH, Computer Graphics Forum, The Visual Computer, Computers & Graphics, IEEE Image Processing, Turkish Journal of Electrical Engineering & Computer Sciences, Computer Animation and Virtual Worlds, IEEE Transactions on Multimedia.
2. TÜBİTAK TEYDEB (Technology and Innovation Support Program) Projects.
3. International Program Committee member of SGP 2016 (Symposium on Geometry Processing).

Associate Editor

1. The Visual Computer (2019 - ongoing).

Awards

1. IEEE Transactions on Multimedia, Outstanding Reviewer Award, 2020.
2. METU Academic Performance Award, 2018.
3. METU Young Researcher Award, 2017.
4. METU Young Researcher Award, 2016.
5. METU Young Researcher Award, 2015.
6. TÜBİTAK-1001 Project Performance Award, 2015.
7. TÜBİTAK-BİDEB 2219 Postdoc Research Program, 2013.
8. Fulbright visiting PhD student scholarship (award not accepted due to another offer, 2012).
9. Koç University Graduate Studies Excellence Award, 2012.
10. IEEE Conference on Signal Processing and Applications, Best Paper Award, 2010.

Teaching

Discrete Mathematics, Operating Systems, Computer Graphics, Data Structures and Algorithms, Digital Geometry Processing (new course offered by Dr. Sahilliođlu, 2015 – present).

Research Projects as Principal Investigator

TÜBİTAK 1001 (2020 – ongoing), TÜBİTAK 1001 (2016 – 2019), TÜBİTAK 3501 (Start: 2015 – 2018), METU-BAP (2015 – 2017).