

Personal information

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Nationality(-ies)	Turkish
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Research Interests

My research centers on the areas of computer vision and machine learning. I believe the right algorithms and representations are the ones that take into account the contextual influences. Thus, the research objective that my students and I pursue is to incorporate different kinds of context (spatial, temporal and/or cross-modal) into all levels of visual processing from low to intermediate and high-level vision.

Education

November 2008	Ph.D., Dept. of Computer Engineering, METU, Turkey Title of Thesis: Simultaneous Bottom-up/Top-down Processing in Early and Mid Level Vision Advisor: Sibel Tari CGPA: 3.94 / 4.00 (High Honor)
July 2003	M.Sc., Dept. of Computer Engineering, METU, Turkey Title of Thesis: Image-based Extraction of Material Reflectance Properties of a 3D Rigid Object Advisor: Volkan Atalay CGPA: 3.86 / 4.00 (High Honor)
June 2001	B.Sc., Dept. of Computer Engineering, METU, Turkey CGPA: 3.68 / 4.00 (High Honor)

Academic Experience

Oct 2020 –	Affiliated Faculty. Koç University and İş Bank Artificial Intelligence Center (KUIS AI) Istanbul, Turkey
Nov 2023 –	Prof. Department of Computer Engineering, Hacettepe University, Ankara, Turkey
Apr 2018 –	Assoc. Prof. Department of Computer Engineering, Hacettepe University, Ankara, Turkey
May 2014 - Apr 2018	Asst. Prof. Department of Computer Engineering, Hacettepe University, Ankara, Turkey
Jan 2011 – May 2014	Instructor Department of Computer Engineering, Hacettepe University, Ankara, Turkey

Apr 2009 - Mar 2010

Postdoctoral Researcher
Département Traitement du Signal et des Images,
TELECOM ParisTech, Paris, France

Dec 2001 - Sep 2008

Teaching Assistant
Department of Computer Engineering,
Middle East Technical University, Ankara, Turkey

Visiting Positions

Oct 2007 - Dec 2007

Invited Researcher
Department of Mathematics (worked with Luminita A. Vese),
University of California, Los Angeles (UCLA), Los Angeles, USA

Jul 2004 - Aug 2004

Invited Researcher
Virginia Bioinformatics Institute (worked with Volkan Atalay and Rengul Cetin-Atalay)
Virginia Polytechnic Institute and State University, Virginia, USA

Book Chapters

E. Erdem and S. Tari, *Revisiting Skeletons from Natural Images*, in Research in Shape Modeling, K. Leonard and S. Tari (eds.), pp. 101-113, July 2015

Journal Publications

B. Ercan, O. Eker, C. Saglam, A. Erdem, E. Erdem, *HyperE2VID: Improving Event-Based Video Reconstruction via Hypernetworks*, *IEEE Transactions on Image Processing*, Vol. 33, pp. 1826-1837, March 2024

A. E. Tekden, A. Erdem, E. Erdem, T. Asfour, E. Ugur, *Object and relation centric representations for push effect prediction*, *Robotics and Autonomous Systems*, Vol. 174, April 2024

O. Torun, S. E. Yuksel, E. Erdem, N. Imamoglu, A. Erdem, *Hyperspectral Image Denoising via Self-Modulating Convolutional Neural Networks*, *Signal Processing*, Vol. 214, January 2024

A. C. Baykal, A. B. Anees, D. Ceylan, E. Erdem, A. Erdem, D. Yuret, *CLIP-Guided StyleGAN Inversion for Text-Driven Real Image Editing*, *ACM Transactions on Graphic*, Vol. 42, No. 5, October 2023

A. Srivastava, A. Rastogi, A. Rao, A. A. Md Shoeb, et al., *Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models*, *Transactions on Machine Learning Research*, April 2023

A. Kocak, E. Erdem, and A. Erdem, *A Gated Fusion Network for Dynamic Saliency Prediction*, *IEEE Transactions on Cognitive and Developmental Systems*, Vol. 14, No. 3, pp. 995-1008, September 2022

K. Cizmeciler, E. Erdem, A. Erdem, *Leveraging Semantic Saliency Maps for Query-Specific Video Summarization*, *Multimedia Tools and Applications*, Vol. 81, pp. 17457-17482, May 2022

E. Erdem, M. Kuyu, S. Yagcioglu, A. Frank, L. Parcalabescu, B. Plank, A. Babii, O. Turuta, A. Erdem, I. Calixto, E. Lloret, E.-S. Apostol, C.-O. Truica, B. Sandrih, A. Gatt, S. Martincic-Ipsic, G. Berend, G. Korvel, *Neural Natural Language Generation: A Survey on Multilinguality, Multimodality, Controllability and Learning*, *Journal of Artificial Intelligence Research*, Vol. 73, pp. 1131-1207, April 2022

A. S. Karadeniz, E. Erdem, A. Erdem, *Burst Photography for Learning to Enhance Extremely Dark Images*, *IEEE Transactions on Image Processing*, Vol. 30, pp. 9372-9385, 2021

M. Ture, M. E. Ciklabakkal, A. Erdem, E. Erdem, P. Satilmis, and A. O. Akyuz, *From Noon to Sunset: Interactive Rendering, Relighting, and Recoloring of Landscape Photographs by Modifying Solar Position*, *Computer Graphics Forum*, Vol. 40, No. 6, pp. 500-515, September 2021

- A. H. Kerim, C. Aslan, U. Celikcan, E. Erdem, Aykut Erdem, *NOVA: Rendering Virtual Worlds with Humans for Computer Vision Tasks*, Computer Graphics Forum, Vol. 40, No. 6, pp. 258-272, September 2021
- O. C. Uner, C. Aslan, B. Ercan, T. Ates, U. Celikcan, A. Erdem, and E. Erdem, *Synthetic18K: Learning better representations for person re-ID and attribute recognition from 1.4 million synthetic images*, Signal Processing: Image Communication, Vol. 97, September 2021
- A. Kerim, U. Celikcan, E. Erdem, and A. Erdem, *Using Synthetic Data for Person Tracking Under Adverse Weather Conditions*, Image and Vision Computing, Vol. 111, July 2021
- B. Citamak, O. Caglayan, M. Kuyu, E. Erdem, A. Erdem, P. Madhyastha, and L. Specia, *MSVD-Turkish: A Comprehensive Multimodal Video Dataset for Integrated Vision and Language Research in Turkish*, Machine Translation, Vol. 35, No. 2, pp. 265-288, June 2021
- E. Boran, A. Erdem, N. Ikizler-Cinbis, E. Erdem, P. Madhyastha, and L. Specia, *Leveraging auxiliary image descriptions for dense video captioning*, Pattern Recognition Letters, Vol. 146, June 2021
- M. Yurt, S. UH Dar, A. Erdem, Erkut Erdem, K. K. Oguz, and T. Cukur, *mustGAN: multi-stream Generative Adversarial Networks for MR Image Synthesis*, Medical Image Analysis, Vol. 70, May 2021
- B. Celikkale, G. Erdogan, A. Erdem, and E. Erdem, *Generating Visual Story Graphs with Application to Photo Album Summarization*, Signal Processing: Image Communication, Vol. 90, January 2021
- M. E. Yuksel, S. Kucuk, S. E. Yuksel, E. Erdem, *Deep Learning for Medicine and Remote Sensing: A Brief Review*, International Journal of Environment and Geoinformatics, Vol. 7, No. 3, December 2020
- L. Karacan, Z. Akata, A. Erdem, and E. Erdem, *Manipulating Attributes of Natural Scenes via Hallucination*, ACM Transactions on Graphics, Vol. 39, No. 1, February 2020
- Y. Kavak, E. Erdem, and A. Erdem, *Hedging Static Saliency Models to Predict Dynamic Saliency*, Signal Processing: Image Communication, Vol. 81, February 2020
- S. U. H. Dar, M. Yurt, L. Karacan, A. Erdem, E. Erdem, and T. Cukur, *Image Synthesis in Multi-Contrast MRI with Conditional Generative Adversarial Networks*, IEEE Transactions on Medical Imaging, Vol. 38, No.10, pp. 2375-2388, October 2019
- C. Bak, A. Kocak, E. Erdem and A. Erdem, *Spatio-Temporal Saliency Networks for Dynamic Saliency Prediction*, IEEE Transactions on Multimedia, Vol. 20, No.7, pp. 1688-1698, July 2018
- L. Karacan, A. Erdem and E. Erdem, *Alpha Matting with KL-Divergence Based Sparse Sampling*, IEEE Transactions on Image Processing, Vol. 26, No. 9, pp. 4523-4536, September 2017
- M. Kilickaya, B. Kerim Akkus, R. Cakici, A. Erdem, E. Erdem and N. Ikizler-Cinbis, *Data-driven Image Captioning via Salient Region Discovery*, IET Computer Vision, Vol. 11, No. 6, pp. 398-406, September 2017
- Y. Kavak, E. Erdem, and A. Erdem, *A Comparative Study for Feature Integration Strategies in Dynamic Saliency Estimation*, Signal Processing: Image Communication, Vol. 51, pp. 13-25, February 2017
- E. Erdem, *A Region Covariances-Based Visual Attention Model for RGB-D Images*, International Journal of Intelligent Systems and Applications in Engineering, Vol. 4, No. 4, pp. 128-134, October 2016
- O. Akin, E. Erdem, A. Erdem, and K. Mikolajczyk, *Deformable Part-based Tracking by Coupled Global and Local Correlation Filters*, Journal of Visual Communication and Image Representation, Vol. 38, pp. 763-773, July 2016
- O. T. Tursun, A. O. Akyuz, A. Erdem and E. Erdem, *An Objective Deghosting Quality Metric for HDR Images*, Computer Graphics Forum (Eurographics 2016), Vol. 35, No. 2, pp. 139-152, May 2016

International Conferences and Workshops

- R. Bernardi, R. Cakici, D. Elliott, A. Erdem, E. Erdem, N. Ikingler-Cinbis, F. Keller, A. Muscat, B. Plank, *Automatic Description Generation from Images: A Survey of Models, Datasets, and Evaluation Measures*, Journal of Artificial Intelligence Research, Vol. 55, pp. 409-442, February 2016
- B. Celikkale, A. Erdem and E. Erdem, *Predicting Memorability of Images Using Attention-driven Spatial Pooling and Image Semantics*, Image and Vision Computing, Vol. 42, pp. 35-46, October 2015 (**Editor's choice article**)
- O. T. Tursun, A. O. Akyuz, A. Erdem and E. Erdem, *The State of the Art in HDR Deghosting: A Survey and Evaluation*, Computer Graphics Forum (Eurographics State-of-the-art Report (STAR) 2015), Vol. 34, No. 2, pp. 683-707, May 2015
- L. Karacan, E. Erdem and A. Erdem, *Structure Preserving Image Smoothing via Region Covariances*, ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2013), Vol. 32, No. 6, November 2013
- E. Erdem and A. Erdem, *Visual Saliency Estimation by Nonlinearly Integrating Features Using Region Covariances*, Journal of Vision, Vol. 13, No. 4, pp. 1-20, March 2013
- E. Erdem, S. Dubuisson and I. Bloch, *Fragments Based Tracking with Adaptive Cue Integration*, Computer Vision and Image Understanding, Vol. 116, No. 7, pp. 827-841, July 2012
- E. Erdem, S. Dubuisson and I. Bloch, *Visual Tracking by Fusing Multiple Cues with Context-Sensitive Reliabilities*, Pattern Recognition, Vol. 45, No. 5, pp. 1948-1959, May 2012
- E. Erdem and S. Tari, *Mumford-Shah Regularizer with Contextual Feedback*, Journal of Mathematical Imaging and Vision, Vol. 33, No. 1, pp. 67-84, January 2009
- C. Aslan, A. Erdem, E. Erdem and S. Tari, *Disconnected Skeleton: Shape at its Absolute Scale*, IEEE Trans. on Pattern Analysis and Machine Intelligence, Vol. 30, No. 12, pp. 2188-2203, December 2008
- A. Erdem, E. Erdem, V. Atalay and A. E. Çetin, *Vision-Based Continuous Graffiti-like Text Entry System*, Optical Engineering, Vol. 43, Issue 3, pp. 553-558, March 2004
- O. Torun, S. E. Yuksel, E. Erdem, A. Erdem, *Self-Supervised Calibration of the Denoising Networks for HSI*, 2024 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2024), Athens, Greece, July 2024
- S. Yagcioglu, O. B. İnce, A. Erdem, E. Erdem, D. Elliott, D. Yuret, *Sequential Compositional Generalization in Multimodal Models*, 2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2024), Mexico City, Mexico, June 2024
- I. Kesen, A. Pedrotti, M. Dogan, M. Cafagna, E. C. Acikgoz, L. Parcalabescu, I. Calixto, A. Frank, A. Gatt, A. Erdem, E. Erdem, *ViLMA: A Zero-Shot Benchmark for Linguistic and Temporal Grounding in Video-Language Models*, The Twelfth International Conference on Learning Representations (ICLR 2024), May 2024
- O. B. İnce, T. Zeraati, S. Yagcioglu, Y. Yaghoobzadeh, E. Erdem, A. Erdem, *Harnessing Dataset Cartography for Improved Compositional Generalization in Transformers*, Findings of EMNLP 2023
- M. Cokелеk, N. Imamoglu, C. Ozcinar, E. Erdem, A. Erdem, *Spherical Vision Transformer for 360-degree Video Saliency Prediction*, The 34th British Machine Vision Conference (BMVC 2023), Aberdeen, UK, November 2023
- M. H. Ali, A. Bond, T. Birdal, D. Ceylan, L. Karacan, E. Erdem, A. Erdem, *Vid-StyleODE: Disentangled Video Editing via StyleGAN and NeuralODEs*, IEEE International Conference on Computer Vision (ICCV 2023), Paris, France, October 2023

- B. Ercan, O. Eker, A. Erdem, E. Erdem, *EVREAL: Towards a Comprehensive Benchmark and Analysis Suite for Event-based Video Reconstruction*, 4th International Workshop on Event-Based Vision at IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2023), Vancouver, Canada, June 2023
- N. Tofighi, M. H. Elfkir, N. Imamoglu, C. Ozcinar, E. Erdem, A. Erdem, *ST360IQ: No-Reference Omnidirectional Image Quality Assessment with Spherical Vision Transformers*, 2023 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2023), June 2023
- I. Kesen, A. Erdem, E. Erdem, Iacer Calixto, *Detecting Euphemisms with Literal Descriptions and Visual Imagery*, 3rd Workshop on Figurative Language Processing at Conference on Empirical Methods in Natural Language Processing (EMNLP 2022), December 2022
- L. Karacan, T. Kerimoğlu, I. Ata İnan, T. Birdal, E. Erdem, A. Erdem, *Disentangling Content and Motion for Text-Based Neural Video Manipulation*, The 33rd British Machine Vision Conference (BMVC 2022), London, UK, November 2022
- C. Korkmaz, A. M. Tekalp, Z. Doğan, E. Erdem, A. Erdem, *Perception-Distortion Tradeoff in the SR Space Spanned by Flow Models*, The 29th IEEE International Conference on Image Processing (ICIP), Bordeaux, France, October 2022
- I. Kesen, O. A. Can, E. Erdem, A. Erdem, D. Yuret, *Modulating Bottom-Up and Top-Down Visual Processing via Language-Conditional Filters*, 5th Multimodal Learning and Applications Workshop at IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2022), June 2022 (**Best Paper Award**)
- T. Ates, M. S. Atesoglu, C. Yigit, I. Kesen, M. Kobas, E. Erdem, A. Erdem, T. Goksun, D. Yuret, *CRAFT: A Benchmark for Causal Reasoning About Forces and Interactions*, Findings of ACL 2022
- M. Coketek, N. Imamoglu, C. Ozcinar, E. Erdem, and A. Erdem, *Leveraging Frequency Based Salient Spatial Sound Localization to Improve 360° Video Saliency Prediction*, International Conference on Machine Vision Applications (MVA 2021), Nagoya, Japan, July 2021
- O. Caglayan, M. Kuyu, M. S. Amac, P. Madhyastha, E. Erdem, A. Erdem, and L. Specia, *Cross-lingual Visual Pre-training for Multimodal Machine Translation*, Conference of the European Chapter of the Association for Computational Linguistics (EACL 2021), April 2021
- A. E. Tekden, A. Erdem, E. Erdem, M. Imre, M. Y. Seker, and E. Ugur, *Belief Regulated Dual Propagation Nets for Learning Action Effects on Articulated Multi-Part Objects*, International Conference on Robotics and Automation (ICRA), Paris, France, May-June 2020
- M.S. Amac, S. Yagcioglu, A. Erdem, and E. Erdem, *Procedural Reasoning Networks for Understanding Multimodal Procedures*, The SIGNLL Conference on Computational Natural Language Learning (CoNLL), Hong Kong, November 2019
- Y. E. Ozkose, B. Celikkale, A. Erdem, and E. Erdem, *Diverse Neural Photo Album Summarization*, International Conference on Image Processing Theory, Tools and Applications (IPTA), Istanbul, Turkey, November 2019
- S. Yagcioglu, A. Erdem, E. Erdem, and N. İkizler-Cinbis, *RecipeQA: A Challenge Dataset for Multimodal Comprehension of Cooking Recipes*, Conference on Empirical Methods in Natural Language Processing (EMNLP) 2018, Brussels, Belgium, October-November 2018
- M. Yücel, H. Lezki, A. Ozturk, M. A. Akpınar, B. Logoglu, E. Erdem, and A. Erdem, *Joint Exploitation of Features and Optical Flow for Real-Time Moving Object Detection on Drones*, 2nd International Workshop on Computer Vision for UAVs (UAVision 2018), ECCV Workshops 2018, Munich, Germany, September 2018
- M. Gunel, E. Erdem, and A. Erdem, *Language Guided Fashion Image Manipulation with Feature-wise Transformations*, 1st Workshop on Computer Vision for Fashion, Art and Design, ECCV Workshops 2018, Munich, Germany, September 2018

- K. B. Logoglu, H. Lezki, M. K. Yucel, A. Ozturk, A. Kucukkomurler, B. Karagoz, A. Erdem and E. Erdem, *Feature-Based Efficient Moving Object Detection for Low-Altitude Aerial Platforms*, IEEE International Conference on Computer Vision Workshops (ICCVW), Venice, Italy, October 2017
- M. Kilickaya, A. Erdem, N. Ikizler-Cinbis and E. Erdem, *Re-evaluating Automatic Metrics for Image Captioning*, The 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2017), Valencia, Spain, April 2017
- M. Kilickaya, N. Ikizler-Cinbis, E. Erdem and A. Erdem, *Leveraging Captions in the Wild to Improve Object Detection*, The 5th Workshop on Vision and Language (VL'16), Berlin, Germany, August 2016
- L. Karacan, A. Erdem and E. Erdem, *Image Matting with KL-Divergence Based Sparse Sampling*, IEEE International Conference on Computer Vision (ICCV 2015), Santiago, Chile, December 2015
- S. Yagcioglu, E. Erdem, A. Erdem and R. Cakici, *A Distributed Representation Based Query Expansion Approach for Image Captioning*, The 53rd Annual Meeting of the Association for Computational Linguistics (ACL 2015), Beijing, China, July 2015
- S. Yagcioglu, E. Erdem and A. Erdem, *City Scale Image Geolocalization via Dense Scene Alignment*, IEEE Winter Conference on Applications of Computer Vision (WACV) 2015, Hawaii, USA, January 2015
- A. Kocak, K. Cizmeciler, A. Erdem and E. Erdem, *Top Down Saliency Estimation via Superpixel-Based Discriminative Dictionaries*, British Machine Vision Conference (BMVC) 2014, Nottingham, UK, September 2014
- Y. Kavak, E. Erdem and A. Erdem, *Visual Saliency Estimation by Integrating Features Using Multiple Kernel Learning*, 6th International Symposium on Attention in Cognitive Systems (ISACS 2013), IJCAI 2013 Workshops, Beijing, China, August 2013
- B. Celikkale, A. Erdem, E. Erdem, *Visual Attention-driven Spatial Pooling for Image Memorability*, IEEE Computer Vision and Pattern Recognition Workshops (CVPRW), Portland, Oregon, USA, June 2013
- A. Erdem and E. Erdem, *Multiple-Instance Learning with Instance Selection via Dominant Sets*, 1st International Workshop on Similarity-Based Pattern Analysis and Recognition (SIMBAD 2011), Venice, Italy, Springer LNCS, Vol. 7005, pp. 177-191, September 2011
- E. Erdem, A. Sancar Yilmaz and S. Tari, *Mumford-Shah Regularizer with Spatial Coherence*, 1st International Conference on Scale Space Methods and Variational Methods in Computer Vision (SSVM 2007), Ischia, Italy, Springer LNCS, Vol. 4485, pp. 545-555, May-June 2007
- A. Erdem, E. Erdem and S. Tari, *Articulation Prior in an Axial Representation*, International Workshop on the Representation and Use of Prior Knowledge in Computer Vision – in conjunction with ECCV 2006, Graz, Austria, pp. 1-14, May 2006
- E. Erdem, A. Erdem and S. Tari, *Edge Strength Functions as Shape Priors in Image Segmentation*, 5th International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR 2005), Florida, USA, Springer LNCS, Vol. 3757, pp. 490-502, November 2005
- E. Erdem, A. Erdem, V. Atalay and A. E. Çetin, *Computer Vision Based Unistroke Keyboard System and Mouse for the Handicapped*, IEEE International Conference on Multimedia and Expo 2003 (ICME 2003), Baltimore, USA, Volume 2, pp. 765-768, July 2003
- A. Erdem, E. Erdem, V. Atalay and A. E. Çetin, *Computer Vision Based Unistroke Keyboards*, 7th International Symposium On Computer and Information Sciences (ISCIS 2002), Florida, USA, pp. 210-214, October 2002

- B. Çitamak, M. Kuyu, A. Erdem, and E. Erdem, *MSVD-Türkçe: Türkçe Video Altyazılama için Geniş Ölçekli Bir Veri Kümesi (MSVD-Turkish: A Large-Scale Dataset for Video Captioning in Turkish)*, 27. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2019), Sivas, Nisan 2019
- M.S. Amac, A. Erdem, and E. Erdem, *Derin Modellerin Eğitiminde Uygulanan Yöntemlerin Giysi Niteliklerinin Tespiti Üzerinde Kıyaslamalı Bir Analizi (A Comparative Analysis of Practices in Training Deep Models for Fashion Attribute Detection)*, 27. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2019), Sivas, Nisan 2019
- M. Günel, E. Erdem, and A. Erdem, *Kişi Görüntülerinin Nitelik Esaslı Üretilmesi (Generating Person Images Based on Attributes)*, 26. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2018), Çeşme, Mayıs 2018
- M. Kuyu, A. Erdem, and E. Erdem, *Altsözcük Öğeleri ile Türkçe Görüntü Altyazılama (Image Captioning in Turkish with Subword Units)*, 26. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2018), Çeşme, Mayıs 2018
- L. Karacan, A. Erdem and E. Erdem, *Çekişmeli Üretici Ağlar Kullanarak Dış Mekan Görüntülerinin Geçici Niteliklerini Düzenleme (Adjusting Transient Attributes of Outdoor Images using Generative Adversarial Networks)*, 25. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2017), Antalya, Mayıs 2017
- C. Güngör, F. Baltacı, A. Erdem and E. Erdem, *Türk Sofrası: Yemek Tanıma için Türk Yemekleri Barındıran Bir Denektaşı Veri Kümesi (Turkish Cuisine: A Benchmark Dataset with Turkish Meals for Food Recognition)*, 25. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2017), Antalya, Mayıs 2017
- M. E. Ünal, B. Çitamak, S. Yağcıoğlu, A. Erdem, E. Erdem, N. İkizler Cinbiş, R. Çakıcı, *TasvirEt: Görüntülerden Otomatik Türkçe Açıklama Oluşturma İçin Bir Denektaşı Veri Kümesi (TasvirEt: A Benchmark Dataset for Automatic Turkish Description Generation from Images)*, 24. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2016), Zonguldak, Mayıs 2016 (**Alper Atalay Best Student Paper Award - First Prize**)
- G. Erdoğan, B. Çelikkale, A. Erdem and E. Erdem, *Kişisel Görüntü Kümelerinin İçsel Özellikler Kullanılarak Özetlenmesi (Summarizing Personal Image Collections with Intrinsic Properties)*, 24. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2016), Zonguldak, Mayıs 2016 (**IEEE Best Student Paper Award - Second Prize**)
- Ç. Bak, A. Erdem and E. Erdem, *Baskın Kümeler ile Hareket Yörüngelerinin Öbeklenmesi (Clustering Motion Trajectories via Dominant Sets)*, 24. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2016), Zonguldak, Mayıs 2016
- B. Asal, A. Erdem and E. Erdem, *İnsan Kalabalıklarının Baskın Kümeler Tabanlı Analizi (Dominant Sets Based Analysis of Human Crowds)*, 24. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2016), Zonguldak, Mayıs 2016
- M. Günel, L. Karacan, A. Erdem, E. Erdem, *Sık Eşleme Yoluyla Görüntü Renklendirme (Image Colorization via Dense Correspondences)*, 22. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2014), Trabzon, Nisan 2014
- M. Kılıçkaya, E. Erdem, A. Erdem, N. İkizler Cinbiş, R. Çakıcı, *Meta-sınıf tabanlı Getirme ile Veriye Dayalı İmge Altyazılama (Data-driven Image Captioning with Meta-class Based Retrieval)*, 22. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2014), Trabzon, Nisan 2014
- O. T. Tursun, A. O. Akyüz, A. Erdem, E. Erdem, *YDA Görüntüler İçin Gölgeleme Giderme Algoritmalarının Karşılaştırılması (Evaluating Deghosting Algorithms for HDR Images)*, 22. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2014), Trabzon, Nisan 2014
- K. Mammadova, E. Erdem, A. Erdem, *Görsel Belirginlik Güdümlü Pozlandırma Birleştirimi (Visual Saliency Guided Exposure Fusion)*, 22. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2014), Trabzon, Nisan 2014

H. T. Erdoğan, Erkut Erdem and Aykut Erdem, *Alan Kovaryansları İçin Grup Seyrekliğine Dayalı Seyrek Kodlama (Group Sparsity Based Sparse Coding for Region Covariances)*, 21. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2013), Girne, K.K.T.C, Nisan 2013

O. Akın, A. Erdem and E. Erdem, *MILIS Çoklu Örnekle Öğrenme Algoritmasının Farklı Bir Örnek Seçme Yöntemiyle Yeniden İncelenmesi (Revisiting MILIS Multiple Instance Learning Algorithm with A Different Instance Selection Mechanism)*, 20. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2012), Ölüdeniz, Fethiye, Nisan 2012

M. E. Erdem, İ. A. Erdem, U. Yılmaz and V. Atalay, *Üç Boyutlu Katı Nesnelerin Yansıtma Özelliklerinin Görüntülerden Çıkarılması*, 12. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2004), pp. 245-248, Kuşadası, Nisan 2004

İ. A. Erdem, M. E. Erdem, V. Atalay and A. E. Çetin, *Engelliler İçin Bilgisayarlı Görmeye Dayalı Klavye ve Fare Sistemi*, 11. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2003), pp. 196-199, İstanbul, Haziran 2003

İ. A. Erdem, M. E. Erdem, V. Atalay and A. E. Çetin, *Kağıt Klavye: Bilgisayarlı Görmeye Dayalı Klavye*, 10. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU 2002), Pamukkale, Haziran 2002

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Other Conference Presentations (abstract only)

E. Erdem and S. Tari, *Mumford-Shah Regularizer with Contextual Feedback*, SIAM Conference on Imaging Science 2008, San Diego, USA, July 2008

M. Iskar, E. Erdem, A. Erdem, S. Akman, A. Dickerman, V. Atalay and R. Cetin-Atalay, *CAPRIS: A Database for Cancer Gene Promoter Related Motif Search*, FEBS journal, Vol. 273, pp. 248, June 2006

E. Erdem, A. Erdem and V. Atalay, *Image-based Extraction of Material Reflectance Properties of a 3D Rigid Object*, Eurographics 2003, Poster Session, Granada, Spain, September 2003

A. Erdem, E. Erdem, V. Atalay and A. E. Çetin, *Computer Based Text Entry for Wearable Computing*, 6th IEEE International Symposium on Wearable Computers, Demonstrations, Seattle, USA, October 2002

A. Erdem, E. Erdem, Y. Yardimci, V. Atalay and A. E. Çetin, *Computer Vision Based Mouse*, IEEE International Conference on Acoustics Speech and Signal Processing 2002 (ICASSP 2002), Student Forum Session, Florida, USA, May 2002

Theses Supervised

PhD Theses Supervised

Aysun Kocak, "Dynamic Fusion Networks for Predicting Saliency in Videos", PhD Thesis, Hacettepe University, January 2023.

Semih Yagcioglu, "Multimodal Machine Comprehension of How-To Instructions with Images and Text", PhD Thesis, Hacettepe University, January 2023.

Kemal Cizmeciler, "Leveraging Semantic Saliency Maps for Query-specific Video Summarization", PhD Thesis, Hacettepe University, September 2022.

Levent Karacan, "Learning Based Image and Video Editing", PhD Thesis, Hacettepe University, December 2019.

Yasin Kavak, "Learning Visual Saliency for Static and Dynamic Scenes, (co-supervised with Aykut Erdem)", PhD Thesis, Hacettepe University, September 2017.

MSc Theses Supervised

Tayfun Ates, "Towards Understanding Intuitive Physics with Language and Vision", MSc Thesis, Hacettepe University, January 2021.

Menekse Kuyu, "Learning Visually-Grounded Representations Using Cross-Lingual Multimodal Pre-Training", MSc Thesis, Hacettepe University, August 2020.

Ahmet Serdar Karadeniz, "Enhancement of Dark Images and Videos via Set-Based Learning", MSc Thesis, Hacettepe University, September 2020.

Begum Citamak, "Turkish Video Captioning with MSVD-Turkish Dataset", MSc Thesis, Hacettepe University, May 2020.

Mehmet Gunel, "Producing synthetic person images with deep generative artificial neural networks", MSc Thesis, Hacettepe University, October 2018.

Goksu Erdogan, "Image Collection Summarization with Intrinsic Properties", MSc Thesis, Hacettepe University, June 2018.

Hasan Tugrul Erdogan, "Sparsity-based discriminative tracking with adaptive cue integration", MSc Thesis, Hacettepe University, August 2015.

Levent Karacan, "Image smoothing by using first and second order region statistics", MSc Thesis, Hacettepe University, January 2014.

Research Grants

As Principal Investigator

Seeing Through Events: End-to-End Approaches to Event-Based Vision Under Extremely Low-Light Conditions, The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects: Award 121E454 - Project Duration: 3 years (15/03/2022-15/03/2025)

A Multimodal and Multilingual Framework for Video Captioning, The Scientific and Technological Research Council of Turkey (TUBITAK) and British Council - Newton-Katip Çelebi Fund Institutional Links Grant Programme: Award 217E054 - Project Duration: 2 years (15/06/2018-15/06/2020)

Using Synthetic Data for Deep Person Re-Identification, The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects: Award 217E029 - Project Duration: 2 years (15/06/2018-15/06/2020)

Understanding Images and Visualizing Text: Semantic Inference and Retrieval by Integrating Computer Vision and Natural Language Processing, The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects: Award 113E116 - Project Duration: 3 years (10/01/2013-10/01/2016)

The Use of Multiple Cues and Contextual Knowledge in Computer Vision, The Scientific and Technological Research Council of Turkey (TUBITAK) Career Development Program: Award 112E146 - Project Duration: 3 years (10/01/2012-10/01/2015)

As Researcher

Seeing the Invisible: End-to-End Approaches for Hyperspectral Image Enhancement and Synthesis, The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects: Award 123E385 – Project Duration: 30 months (15/11/2023-15/05/2026)

Quality Assessment of 360-Degree Videos Guided by Audio-Visual Saliency, The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects: Award 120E501 – Project Duration: 3 years (15/03/2021-15/03/2024)

Summarization Approaches Towards Interpreting Big Visual Data, The Scientific and Technological Research Council of Turkey (TUBITAK) 1003 Primary Subjects R&D Funding Program: Award 116E685 - Project Duration: 3 years (09/15/2017-09/15/2020)

City-wide Video Surveillance System, The Scientific and Technological Research Council of Turkey (TUBITAK) The Public Institutions Research Funding Program: Award 114G028 – Project Duration: 30 months (03/15/2016-09/15/2018)

Awards

Turkish Academy of Sciences, The Outstanding Young Scientists Award, December 2018

NVIDIA Academic Research Hardware Grant, December 2017
Hacettepe University The Outstanding Young Scientists Award, November 2016
NVIDIA Academic Research Hardware Grant, February 2016
TUBITAK Graduate Scholarship for visiting doctoral research (October - December 2007)
TUBITAK Graduate Scholarship for doctoral research (2004 - 2008)

Professional Activities

Associate Editor
Reviewer for Journals

IEEE Transactions on Multimedia
ACM Trans. on Graphics
Computer Vision and Image Understanding
IET Computer Vision
Pattern Recognition
IEEE Transactions on Cognitive Develop Systems
IEEE Transactions on Image Processing
IEEE Transactions on Multimedia
IEEE Transactions on Neural Networks and Learning Systems
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Systems, Man, and Cybernetics–Part B: Cybernetics
International Journal of Computer Vision
Journal of Mathematical Imaging and Vision
Signal Processing: Image Communication

Reviewer for Conferences

AAAI 2021
ACL 2015, 2018, 2020, 2021
ACML 2020
BMVC 2022
CoNLL 2019, 2020
EMNLP 2019, 2020, 2021, 2022
ICRA 2018
IJCAI 2020, 2021
CVPR 2018
NAACL-HLT 2019, 2020, 2021, 2024
SIGGRAPH 2014, 2015, 2023
WACV 2013, 2014, 2015, 2016, 2017

Memberships

Institute of Electrical and Electronics Engineers (IEEE), Senior Member
Association for Computing Machinery (ACM)
The Association for Computational Linguistics (ACL)
The Computer Vision Foundation (CVF)
IEEE Signal Processing Society