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International Researcher IDs

ScholarID: [yiAWeIAAAAAJ](https://orcid.org/0000-0003-0915-5917)

ORCID: 0000-0003-0915-5917

Publons / Web Of Science ResearcherID: A-4843-2016

ScopusID: 23027462100

Yoksis Researcher ID: 29097

Education Information

Doctorate, Georg-August-Universitaet Göttingen, Matematik Fakültesi, Germany 2005 - 2008

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Bilgisayar Mühendisliği (YI) (Tezli), Turkey 2001 - 2003

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, Turkey 1996 - 2001

Biography

S. Kalkan is an associate professor at the Dept. of Computer Engineering at METU (Turkey). He received his Ph.D. degree from the University of Gottingen (Germany). Dr. Kalkan's current research interests include object detection, and imbalance problems and fairness in learning. Dr. Kalkan's work received the IEEE TCDS Outstanding Paper 2019 Award, the METU Thesis of the Year 2019 (with his student), and BAGEP Award of the Science Academy, Turkey. He serves as an associate editor at IEEE Robotics and Automation Letters and a member of the advisory board of TUBITAK International Collaborations Research Group.

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Multi-modal statistics of local image structures and its applications for depth prediction, Georg-August-Universitaet Göttingen, Matematik Fakültesi, 2008

Postgraduate, A comparative study of evolutionary network design, Middle East Technical University, Graduate School of Natural and Applied Sciences, Bilgisayar Mühendisliği (YI) (Tezli), 2003

Research Areas

Computer Sciences, Artificial Intelligence, Computer Learning and Pattern Recognition, Engineering and Technology

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2023 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2017 - 2023

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2010 - 2017

Research Assistant, Georg-August-Universitaet Göttingen, 2005 - 2008

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

Academic and Administrative Experience

Uygulama ve Araştırma Merkezi Yönetim Kurulu Üyesi, Middle East Technical University, Presidency Office, ODTÜ GÖRÜNTÜ ANALİZİ MERKEZİ (OGAM), 2017 - Continues

Uygulama ve Araştırma Merkezi Yönetim Kurulu Üyesi, Middle East Technical University, 2015 - 2021

Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2014 - 2017

Courses

Advanced Deep Learning, Postgraduate, 2021 - 2022, 2019 - 2020

PROGRAMMING WITH PYTHON FOR ENGINEERS, Undergraduate, 2020 - 2021

SIGNALS AND SYSTEMS FOR COMPUTER ENGINEERS, Undergraduate, 2018 - 2019, 2014 - 2015, 2013 - 2014, 2012 - 2013

ALGORITHMS, Undergraduate, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011

COMPUTATIONAL VISION, Postgraduate, 2011 - 2012, 2010 - 2011

Logic Design, Undergraduate, 2010 - 2011, 2009 - 2010

C Programming, Undergraduate, 2010 - 2011

Advising Theses

Gürsel Dino I., Kalkan S., Urban scale prediction of indoor daylighting illumination for sustainable buildings, Postgraduate, İ.CANLI(Student), 2022

Kalkan S., Aydın Göl E., Peak-aware traffic prediction with deep learning models and a driver simulation method with probabilistic hybrid automaton, Postgraduate, F.ACUN(Student), 2022

Kalkan S., Akbaş E., Quantifying and mitigating class imbalance in long-tailed visual recognition, Postgraduate, Z.SONAT(Student), 2022

KALKAN S., Object augmentation for out-of-context object recognition, Postgraduate, O.CAN(Student), 2022

Akbaş E., Kalkan S., IDENTIFYING AND ADDRESSING IMBALANCE PROBLEMS IN VISUAL DETECTION, Doctorate, K.ÖKSÜZ(Student), 2021

Kalkan S., Text Generation and Comprehension for Objects in Images and Videos, Postgraduate, H.ANAYURT(Student), 2021

Kalkan S., Towards Uncertainty-Aware Disentangled Representations, Postgraduate, S.ARTUN(Student), 2021

Kalkan S., Alatan A. A., An Analysis on the Effect of Dynamic Range on Object Detection with Deep Neural Networks, Postgraduate, İ.HAKKI(Student), 2021

Kalkan S., Saranlı A., A comparative study of deep reinforcement learning methods and conventional controllers for aerial manipulation, Postgraduate, K.BURAK(Student), 2021

Kalkan S., Alatan A. A., A Thorough Analysis of Unsupervised Depth and Ego-motion Estimation, Postgraduate, A.EREN(Student), 2020

Kalkan S., Akbaş E., Training Object Detectors by Directly Optimizing LRP Metric, Postgraduate, B.CAN(Student), 2020

Kalkan S., Şahin E., ALET (Automated Labeling of Equipment and Tools): A Dataset for Tool Detection and Human Worker Safety Detection, Postgraduate, F.CAN(Student), 2020

Kalkan S., Acartürk C., A gaze-centered multimodal approach to face-to-face interaction, Doctorate, Ü.ARSLAN(Student), 2020

Kalkan S., Alatan A. A., EXPLORING DEEP SPATIO-TEMPORAL FUSION ARCHITECTURES TOWARDS LATE TEMPORAL MODELING OF HUMAN ACTION RECOGNITION, Postgraduate, M.ESAT(Student), 2020

Kalkan S., Akbaş E., Does estimated depth help object detection?, Postgraduate, B.ÇETİNKAYA(Student), 2019

Kalkan S., Saranlı A., A comparative study of learning based control policies and conventional controllers on 2D bi-rotor platform with tail assistance, Postgraduate, H.İBRAHİM(Student), 2019

Kalkan S., Sahillioğlu Y., Supervised mesh segmentation for 3d objects with graph convolutional neural networks, Postgraduate, E.KAAN(Student), 2019

KALKAN S., SAHİLLİOĞLU Y., Deep 3D semantic scene extrapolation, Postgraduate, A.ABBASI(Student), 2018

KALKAN S., Contextualized scene modeling using Boltzmann machines, Postgraduate, İ.BOZCAN(Student), 2018

KALKAN S., End-to-end networks for detection and tracking of micro unmanned aerial vehicles, Postgraduate, C.AKER(Student), 2018

KALKAN S., Hierarchical incremental context modeling on robots, Postgraduate, F.İRMAK(Student), 2017

KALKAN S., TEMİZEL A., Spatial 3D local descriptors for object recognition in RGB-D images, Doctorate, K.BERKER(Student), 2016

ŞAHİN E., KALKAN S., A grounded and contextualized web of concepts on a humanoid robot, Doctorate, H.ÇELİKKANAT(Student), 2015

KALKAN S., A comparison of methods for trademark retrieval in a large trademark dataset, Postgraduate, W.TUERXUN(Student), 2015

KALKAN S., Analysis of methods for border ownership estimation, Postgraduate, S.OLGUNSOYLU(Student), 2015

KALKAN S., Multi-modal stereo-vision using infrared/visible camera pairs, Doctorate, M.YAMAN(Student), 2014

KALKAN S., Analysis of border ownership cues and improvement of depth prediction using border ownership, Postgraduate, M.AKİF(Student), 2014

KALKAN S., YARMAN VURAL F. T., Estimating border ownership using iterative vector voting and conditional random fields, Postgraduate, B.ÖZKAN(Student), 2014

KALKAN S., A method for isolated sign recognition with Kinect, Postgraduate, E.İŞIKLIGİL(Student), 2014

KALKAN S., A multinomial prototype-based learning algorithm, Postgraduate, A.CAN(Student), 2014

KALKAN S., Building a web of concepts on a humanoid robot, Postgraduate, G.ORHAN(Student), 2014

KALKAN S., Analysis of methods for finger vein recognition, Postgraduate, F.YOUSEFİ(Student), 2013

ŞAHİN E., KALKAN S., Formation of adjective, noun and verb concepts through affordances, Postgraduate, O.YÜRÜTEN(Student), 2012

KALKAN S., Shape descriptors based on intersection consistency and global binary patterns, Postgraduate, E.SİVRİ(Student), 2012

KALKAN S., Improving edge detection using intersection consistency, Postgraduate, S.ÇİFTÇİ(Student), 2011

KALKAN S., ŞAHİN E., Emergence of verb and object concepts through learning affordances, Postgraduate, N.DAĞ(Student), 2010

KALKAN S., ŞAHİN E., Function and appearance-based emergence of object concepts through affordances, Postgraduate, İ.ATIL(Student), 2010

Jury Memberships

Doctorate, Doctorate, Odense Universitet (Odense University), January, 2018

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Pre-Grasp Approaching on Mobile Robots: A Pre-Active Layered Approach**
Naik L., KALKAN S., Kruger N.
IEEE Robotics and Automation Letters, vol.9, no.3, pp.2606-2613, 2024 (SCI-Expanded)
- II. **Perspectives of Machine Learning and Natural Language Processing on Characterizing Positive Energy Districts**
Han M., Canli I., Shah J., Zhang X., GÜRSEL DİNO İ., KALKAN S.
Buildings, vol.14, no.2, 2024 (SCI-Expanded)
- III. **An explainable two-stage machine learning approach for precipitation forecast**
Senocak A. U. G., YILMAZ M. T., KALKAN S., YÜCEL İ., Amjad M.
Journal of Hydrology, vol.627, 2023 (SCI-Expanded)
- IV. **Crowd-aware Thresholded Loss for Object Detection in Wide Area Motion Imagery**
Hatipoglu P. U., İYİĞÜN C., KALKAN S.
PFG - Journal of Photogrammetry, Remote Sensing and Geoinformation Science, vol.91, no.5, pp.339-364, 2023 (SCI-Expanded)
- V. **TMO-Det: Deep tone-mapping optimized with and for object detection**
Kocdemir I. H., Koz A., AKYÜZ A. O., Chalmers A., ALATAN A. A., Kalkan S.
Pattern Recognition Letters, vol.172, pp.230-236, 2023 (SCI-Expanded)
- VI. **One Metric to Measure Them All: Localisation Recall Precision (LRP) for Evaluating Visual Detection Tasks**
Oksuz K., Cam B. C., KALKAN S., AKBAŞ E.
IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, vol.44, no.12, pp.9446-9463, 2022 (SCI-Expanded)
- VII. **Hand-crafted versus learned representations for audio event detection**
Kucukbay S. E., YAZICI A., KALKAN S.
MULTIMEDIA TOOLS AND APPLICATIONS, vol.81, no.21, pp.30911-30930, 2022 (SCI-Expanded)
- VIII. **Vision-based estimation of the number of occupants using video cameras**
Dino İ., Kalfaoglu E., Iseri O. K., Erdogan B., Kalkan S., Alatan A. A.
Advanced Engineering Informatics, vol.53, 2022 (SCI-Expanded)
- IX. **Does depth estimation help object detection?**
Cetinkaya B., Kalkan S., Akbaş E.
Image and Vision Computing, vol.122, 2022 (SCI-Expanded)
- X. **The Hitchhiker's Guide to Bias and Fairness in Facial Affective Signal Processing: Overview and techniques**
Cheong J., KALKAN S., Gunes H.
IEEE SIGNAL PROCESSING MAGAZINE, vol.38, no.6, pp.39-49, 2021 (SCI-Expanded)
- XI. **Imbalance Problems in Object Detection: A Review**
Oksuz K., Cam B. C., Kalkan S., Akbas E.
IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, vol.43, no.10, pp.3388-3415, 2021 (SCI-Expanded)
- XII. **Reinforcement Learning versus Conventional Control for Controlling a Planar Bi-rotor Platform with Tail Appendage**
Ugurlu H. I., KALKAN S., SARANLI A.
Journal of Intelligent and Robotic Systems: Theory and Applications, vol.102, no.4, 2021 (SCI-Expanded)
- XIII. **Speech Driven Gaze in a Face-to-Face Interaction**

- Arslan Aydin U., KALKAN S., ACARTÜRK C.
FRONTIERS IN NEUROBOTICS, vol.15, 2021 (SCI-Expanded)
- XIV. **Image-based construction of building energy models using computer vision**
GÜRSEL DİNO İ., Sari A. E., Iseri O. K., Akin S., Kalfaoglu E., Erdogan B., KALKAN S., ALATAN A. A.
AUTOMATION IN CONSTRUCTION, vol.116, 2020 (SCI-Expanded)
- XV. **COSMO: Contextualized scene modeling with Boltzmann Machines**
Bozcan I., Kalkan S.
ROBOTICS AND AUTONOMOUS SYSTEMS, vol.113, pp.132-148, 2019 (SCI-Expanded)
- XVI. **Deep 3D semantic scene extrapolation**
Abbasi A., Kalkan S., Sahillioglu Y.
VISUAL COMPUTER, vol.35, pp.271-279, 2019 (SCI-Expanded)
- XVII. **MAGiC: A Multimodal Framework for Analysing Gaze in Dyadic Communication**
Aydin U. A., Kalkan S., Acartürk C.
JOURNAL OF EYE MOVEMENT RESEARCH, vol.11, 2018 (SCI-Expanded)
- XVIII. **Performance evaluation of similarity measures for dense multimodal stereovision**
Yaman M., Kalkan S.
JOURNAL OF ELECTRONIC IMAGING, vol.25, 2016 (SCI-Expanded)
- XIX. **Learning Context on a Humanoid Robot using Incremental Latent Dirichlet Allocation**
Çelikkanat H., Orhan G., Pugeault N., Guerin F., Sahin E., Kalkan S.
IEEE TRANSACTIONS ON COGNITIVE AND DEVELOPMENTAL SYSTEMS, vol.8, pp.42-59, 2016 (SCI-Expanded)
- XX. **CoSPAIR: Colored Histograms of Spatial Concentric Surflet-Pairs for 3D object recognition**
Logoglu K. B., Kalkan S., TEMİZEL A.
ROBOTICS AND AUTONOMOUS SYSTEMS, vol.75, pp.558-570, 2016 (SCI-Expanded)
- XXI. **Vision-Based Detection and Distance Estimation of Micro Unmanned Aerial Vehicles**
Gökçe F., Ucoluk G., Sahin E., Kalkan S.
SENSORS, vol.15, pp.23805-23846, 2015 (SCI-Expanded)
- XXII. **A Probabilistic Concept Web on a Humanoid Robot**
Çelikkanat H., Orhan G., Kalkan S.
IEEE TRANSACTIONS ON AUTONOMOUS MENTAL DEVELOPMENT, vol.7, pp.92-106, 2015 (SCI-Expanded)
- XXIII. **An iterative adaptive multi-modal stereo-vision method using mutual information**
Yaman M., Kalkan S.
JOURNAL OF VISUAL COMMUNICATION AND IMAGE REPRESENTATION, vol.26, pp.115-131, 2015 (SCI-Expanded)
- XXIV. **Verb concepts from affordances**
Kalkan S., Dağ N., Yuerueten O., Borghi A. M., Sahin E.
INTERACTION STUDIES, vol.15, pp.1-37, 2014 (SSCI)
- XXV. **The learning of adjectives and nouns from affordance and appearance features**
Yuerueten O., Şahin E., Kalkan S.
ADAPTIVE BEHAVIOR, vol.21, pp.437-451, 2013 (SCI-Expanded)
- XXVI. **Deep Hierarchies in the Primate Visual Cortex: What Can We Learn for Computer Vision?**
KRÜGER N., JANSSEN P., KALKAN S., LAPPE M., LEONARDİS A., PIATER J., Rodriguez-Sanchez A. J., WISKOTT L.
IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, vol.35, no.8, pp.1847-1871, 2013 (SCI-Expanded)
- XXVII. **Disparity disambiguation by fusion of signal- and symbolic-level information**
Ralli J., Diaz J., KALKAN S., Krueger N., Ros E.
MACHINE VISION AND APPLICATIONS, vol.23, no.1, pp.65-77, 2012 (SCI-Expanded)
- XXVIII. **Using multi-modal 3D contours and their relations for vision and robotics**
BAŞESKİ E., Pugeault N., Kalkan S., BODENHAGEN L., Piater J. H., KRÜGER N.
JOURNAL OF VISUAL COMMUNICATION AND IMAGE REPRESENTATION, vol.21, no.8, pp.850-864, 2010 (SCI-Expanded)
- XXIX. **Continuous dimensionality characterization of image structures**
Felsberg M., Kalkan S., Kruger N.

- IMAGE AND VISION COMPUTING, vol.27, no.6, pp.628-636, 2009 (SCI-Expanded)
- XXX. **BIRTH OF THE OBJECT: DETECTION OF OBJECTNESS AND EXTRACTION OF OBJECT SHAPE THROUGH OBJECT-ACTION COMPLEXES**
KRAFT D., Pugeault N., BAŞESKİ E., POPOVIC M., Kragic D., Kalkan S., Woergoetter F., Krueger N.
INTERNATIONAL JOURNAL OF HUMANOID ROBOTICS, vol.5, no.2, pp.247-265, 2008 (SCI-Expanded)
- XXXI. **First-order and second-order statistical analysis of 3d and 2d image structure**
Kalkan S., Worgotter F., Kruger N.
NETWORK-COMPUTATION IN NEURAL SYSTEMS, vol.18, no.2, pp.129-160, 2007 (SCI-Expanded)
- XXXII. **Local image structures and optic flow estimation**
Kalkan S., Calow D., Worgotter F., Lappe M., Kruger N.
NETWORK-COMPUTATION IN NEURAL SYSTEMS, vol.16, no.4, pp.341-356, 2005 (SCI-Expanded)

Articles Published in Other Journals

- I. **Mind Your Manners! A Dataset and a Continual Learning Approach for Assessing Social Appropriateness of Robot Actions**
Tjomsland J., Kalkan S., Gunes H.
FRONTIERS IN ROBOTICS AND AI, vol.9, 2022 (ESCI)
- II. **A Large-scale Dataset and Benchmark for Similar Trademark Retrieval**
Tursun O., Aker C., Kalkan S.
Arxiv, vol.1, no.1, 2018 (Non Peer-Reviewed Journal)
- III. **Towards an Embodied Developing Vision System**
Atil I., Kalkan S.
KUNSTLICHE INTELLIGENZ, vol.29, no.1, pp.41-50, 2015 (ESCI)

Books & Book Chapters

- I. **Derin Öğrenme**
Yarman Vural F. T., Cinbiş R. G., Kalkan S.
Buzdağı Yayınevi, Ankara, 2018
- II. **Introduction to programming concepts with case studies in Python**
ÜÇOLUK G., KALKAN S.
Springer, 2012

Refereed Congress / Symposium Publications in Proceedings

- I. **A Novel Graph Neural Network for Zone-Level Urban-Scale Building Energy Use Estimation**
Halaçlı E. G., Canlı I., Işeri O. K., YAVUZ F., Akgül Ç. M., KALKAN S., GÜRSEL DİNO İ.
10th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, BuildSys 2023, İstanbul, Turkey, 15 - 16 November 2023, pp.169-176
- II. **Counterfactual Fairness for Facial Expression Recognition**
Cheong J., Kalkan S., Gunes H.
17th European Conference on Computer Vision, ECCV 2022, Tel-Aviv-Yafo, Israel, 23 - 27 October 2022, vol.13805 LNCS, pp.245-261
- III. **Useful Daylight Illuminance Prediction Under Data Imbalance in an Urban Context**
Canlı I., KALKAN S., GÜRSEL DİNO İ.
41st Conference on Education and Research in Computer Aided Architectural Design in Europe, eCAADe 2023, Graz, Austria, 20 - 22 September 2023, vol.2, pp.599-608

- IV. **Causal Structure Learning of Bias for Fair Affect Recognition**
Cheong J., KALKAN S., Gunes H.
2023 IEEE/CVF Winter Conference on Applications of Computer Vision Workshops, WACVW 2023, Hawaii, United States Of America, 3 - 07 January 2023, pp.340-349
- V. **Towards Causal Replay for Knowledge Rehearsal in Continual Learning**
Churamani N., Cheong J., KALKAN S., Gunes H.
1st AAAI Bridge Program on Continual Causality, Washington, United States Of America, 7 - 08 February 2023, vol.208, pp.63-70
- VI. **Compiling Open Datasets to Improve Urban Building Energy Models with Occupancy and Layout Data**
Duran A., Işeri O. K., Akgül Ç., Kalkan S., Gürsel Dino I.
Conference of the Association for ComputerAided Architectural Design Research in Asia (CAADRIA) 2022, Sydney, Australia, 12 April - 14 May 2022, vol.2, pp.669-678
- VII. **Segment Augmentation and Differentiable Ranking for Logo Retrieval**
Yavuz F., Kalkan S.
26th International Conference on Pattern Recognition, ICPR 2022, Montreal, Canada, 21 - 25 August 2022, vol.2022-August, pp.1621-1627
- VIII. **Object Detection for Autonomous Driving: High-Dynamic Range vs. Low-Dynamic Range Images**
Kocdemir I. H., Akyüz A. O., Koz A., Chalmers A., Alatan A. A., Kalkan S.
24th IEEE International Workshop on Multimedia Signal Processing, MMSP 2022, Shanghai, China, 26 - 28 September 2022
- IX. **An Analysis on Disentanglement in Machine Learning Makine Öğrenmesinde Ayırışıklık Üzerine Bir Analiz**
MOĞULTAY H., KALKAN S., YARMAN VURAL F. T.
30th Signal Processing and Communications Applications Conference, SIU 2022, Safranbolu, Turkey, 15 - 18 May 2022
- X. **AssembleRL: Learning to Assemble Furniture from Their Point Clouds**
Aslan O., Bolat B., Bal B., Tumer T., Şahin E., Kalkan S.
2022 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2022, Kyoto, Japan, 23 - 27 October 2022, vol.2022-October, pp.2748-2753
- XI. **Spatio-Temporal Analysis of Facial Actions using Lifecycle-Aware Capsule Networks**
Churamani N., KALKAN S., Güneş H.
IEEE International Conference on Automatic Face and Gesture Recognition, India, 15 - 18 December 2021
- XII. **Mask-aware IoU for Anchor Assignment in Real-time Instance Segmentation**
ÖKSÜZ K., ÇAM B. C., Kahraman F., Baltacı Z. S., KALKAN S., AKBAŞ E.
The 32nd British Machine Vision Conference, United Kingdom, 22 November 2021
- XIII. **HDR IMAGE CONSTRUCTION FROM TRIFOCAL MULTIEXPOSURE IMAGES**
KOZ A., Demirkılıç B., Kurt Y. B., AKYÜZ A. O., KALKAN S., ALATAN A. A., Chalmers A.
IEEE MMSP, Tampere, Finland, 06 October 2021
- XIV. **Lifelong learning and personalization in long-term human-robot interaction (LEAP-HRI)**
Irfan B., Ramachandran A., Spaulding S., KALKAN S., Parisi G. I., Gunes H.
2021 ACM/IEEE International Conference on Human-Robot Interaction, HRI 2021, Virtual, Online, United States Of America, 8 - 11 March 2021, pp.724-727
- XV. **Transformer-Encoder Detector Module: Using Context to Improve Robustness to Adversarial Attacks on Object Detection**
Alamri F., KALKAN S., Pugeault N.
25th International Conference on Pattern Recognition (ICPR), ELECTR NETWORK, 10 - 15 January 2021, pp.9577-9584
- XVI. **Rank & Sort Loss for Object Detection and Instance Segmentation**
Oksuz K., Cam B. C., AKBAŞ E., KALKAN S.
18th IEEE/CVF International Conference on Computer Vision (ICCV), ELECTR NETWORK, 11 - 17 October 2021, pp.2989-2998

- XVII. **A Ranking-based, Balanced Loss Function Unifying Classification and Localisation in Object Detection**
Öksüz K., Çam B. C., Akbaş E., Kalkan S.
2020 Conference on Neural Information Processing Systems, Montreal, Canada, 6 - 12 December 2020, vol.33, pp.15534-15545
- XVIII. **ALET (Automated Labeling of Equipment and Tools): A Dataset, a Baseline and a Usecase for Tool Detection in the Wild**
Kurnaz F. C., Hocaoglu B., Yilmaz M. K., Sülo İ., KALKAN S.
ECCV2020 International Workshop on Assistive Computer Vision and Robotics, 28 August 2020
- XIX. **Investigating Bias and Fairness in Facial Expression Recognition**
Xu T., Jennifer W., KALKAN S., Güneş H.
ECCV2020 Workshop: ChaLearn Looking at People workshop ECCV: Fair Face Recognition and Analysis, 28 August 2020
- XX. **Late Temporal Modeling in 3D CNN Architectures with BERT for Action Recognition**
KALFAOĞLU M. E., KALKAN S., ALATAN A. A.
ECCV Video Turing Test (VTT) Workshop, 28 August 2020
- XXI. **Vision-Based Lighting State Detection and Curtain Openness Ratio Prediction**
Kalfaoğlu E., Gürsel Dino I., Işeri O. K., Akın Ş., Sarı A. E., Erdoğan B., Kalkan S., Alatan A. A.
The Symposium on Simulation for Architecture and Urban Design (SimAUD), Vienna, Austria, 23 - 25 May 2020
- XXII. **Generating positive bounding boxes for balanced training of object detectors**
Oksuz K., Cam B. C., Akbaş E., Kalkan S.
2020 IEEE/CVF Winter Conference on Applications of Computer Vision, WACV 2020, Colorado, United States Of America, 1 - 05 March 2020, pp.883-892
- XXIII. **A ranking-based, balanced loss function unifying classification and localisation in object detection**
Oksuz K., Cam B. C., AKBAŞ E., KALKAN S.
34th Conference on Neural Information Processing Systems, NeurIPS 2020, Virtual, Online, 6 - 12 December 2020, vol.2020-December
- XXIV. **Continual Learning for Affective Robotics: Why, What and How?**
Churamani N., Kalkan S., Gunes H.
29th IEEE International Conference on Robot and Human Interactive Communication (IEEE RO-MAN), ELECTRONETWORK, 31 August - 04 September 2020, pp.425-431
- XXV. **Automated building energy modeling for existing buildings using computer vision**
Gürsel Dino I., Sarı A. E., Kalfaoğlu E., Akın Ş., Işeri O. K., Kalkan S., Alatan A. A., Erdoğan B.
CIB W78: Conference: Advances in ICT in Design, Construction and Management in Architecture, Engineering, Construction and Operations (AECO), Newcastle-Upon-Tyne, United Kingdom, 18 - 20 September 2019
- XXVI. **Video Content Analysis-Based Detection of Occupant Presence for Building Energy Modelling**
Gürsel Dino I., Kalfaoğlu E., Sarı A. E., Akın Ş., Işeri O. K., Alatan A. A., Kalkan S., Erdoğan B.
CIB W78: Conference: Advances in ICT in Design, Construction and Management in Architecture, Engineering, Construction and Operations (AECO), Newcastle-Upon-Tyne, United Kingdom, 18 - 20 September 2019
- XXVII. **Searching for Ambiguous Objects in Videos using Relational Referring Expressions**
Anayurt H., ÖZYEĞİN S. A., Çetin Ü., Aktaş U., KALKAN S.
30th British Machine Vision Conference (BMVC), 9 - 12 September 2019
- XXVIII. **Learning to Generate Unambiguous Spatial Referring Expressions for Real-World Environments**
Dagan F. I., KALKAN S., Leite I.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, 4 - 08 November 2019, pp.4992-4999
- XXIX. **Learning to Increment A Contextual Model**
Kalkan S., Hande Ç., Doğan F. I., Bozcan İ.
Continual Learning Workshop at Neural Information Processing Systems, Montreal, Canada, 6 - 07 December 2018, pp.1-4
- XXX. **CINet: A Learning Based Approach to Incremental Context Modeling in Robots**
Doğan F. I., Bozcan I., Çelik M., Kalkan S.

International Conference on Intelligent Robots (IROS 2018), Madrid, Spain, 1 - 05 October 2018

- XXXI. **Localization recall precision (LRP): A new performance metric for object detection**
Öksüz K., Çam B. C., Akbaş E., Kalkan S.
15th European Conference on Computer Vision, ECCV 2018, Munich, Germany, 8 - 14 September 2018, pp.521-537
- XXXII. **What is (Missing or Wrong) in the Scene? A Hybrid Deep Boltzmann Machine for Contextualized Scene Modeling**
Bozcan I., Oymak Y., Alemdar İ. Z., Kalkan S.
2018 IEEE International Conference on Robotics and Automation (ICRA), Brisbane, Australia, 21 - 25 May 2018
- XXXIII. **A Deep Incremental Boltzmann Machine for Modeling Context in Robots**
Doğan F. I., Çelikkanat H., Kalkan S.
2018 IEEE International Conference on Robotics and Automation (ICRA), Brisbane, Australia, 21 - 25 May 2018
- XXXIV. **Dynamic gaze analysis: An application environment for face-to-face communication**
Ülkü A. A., Kalkan S., Acartürk C.
2017 International Artificial Intelligence and Data Processing Symposium (IDAP), Malatya, Turkey, 16 - 17 September 2017
- XXXV. **Drone-vs-Bird detection challenge at IEEE AVSS2017**
Coluccia A., Ghenescu M., Piatrik T., De Cubber G., Schumann A., Sommer L., Klatte J., Schuchert T., Beyerer J., Farhadi M., et al.
14th IEEE International Conference on Advanced Video and Signal Based Surveillance, AVSS 2017, Lecce, Italy, 29 August - 01 September 2017
- XXXVI. **Using deep networks for drone detection**
Aker C., Kalkan S.
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- XXXVII. **A gaze-centered multimodal approach to human-human social interaction**
Acartürk C., Kalkan S., Aydın U. A.
3rd IEEE International Conference on Cybernetics, CYBCONF 2017, Exeter, United Kingdom, 21 - 23 June 2017
- XXXVIII. **Analyzing deep features for trademark retrieval Marka Erişimi İçin Derin Özniteliklerin İncelenmesi**
Aker C., Tursun O., Kalkan S.
25th Signal Processing and Communications Applications Conference, SIU 2017, Antalya, Turkey, 15 - 18 May 2017
- XXXIX. **SHREC'16 track: Shape retrieval of low-cost RGB-D captures**
Pascoal P. B., Proença P., Gaspar F., Dias M. S., Ferreira A., Tatsuma A., Aono M., Logoglu K. B., Kalkan S., Temizel A., et al.
9th Eurographics Workshop on 3D Object Retrieval, 3DOR 2016, Lisbon, Portugal, 08 May 2016, pp.69-78
- XL. **Mikro İnsansız Hava Araçlarının Kademeli Sınıflandırıcılarla Algılanması ve Mesafe Tespiti**
Gökçe F., Üçoluk G., Şahin E., Kalkan S.
Türkiye Robotbilim Konferansı, İstanbul, Turkey, 26 - 27 October 2015
- XLI. **Integrating Spatial Concepts into a Probabilistic Concept Web**
Celikkanat H., Sahin E., Kalkan S.
International Conference on Advanced Robotics (ICAR), İstanbul, Turkey, 27 - 31 July 2015, pp.259-264
- XLII. **METU Dataset: A Big Dataset for Benchmarking Trademark Retrieval**
Tursun O., Kalkan S.
14th IAPR International Conference on Machine Vision Applications (MVA), Tokyo, Japan, 18 - 22 May 2015, pp.514-517
- XLIII. **An MRF Framework For Co-Solving Image Segmentation and Border Ownership**
Karadag O. O., Akkus M. A., Kalkan S., Vural F. T. Y.
23rd Signal Processing and Communications Applications Conference (SIU), Malatya, Turkey, 16 - 19 May 2015, pp.839-842
- XLIV. **Learning and Using Context on a Humanoid Robot Using Latent Dirichlet Allocation**
Celikkanat H., Orhan G., Pugeault N., Guerin F., Şahin E., Kalkan S.
4th Joint IEEE International Conferences on Development and Learning and Epigenetic Robotics (IEEE ICDL-

Epirob), Genoa, Italy, 13 - 16 October 2014, pp.201-207

- XLV. **Using Slowness Principle for Feature Selection: Relevant Feature Analysis**
Celikkanat H., KALKAN S.
22nd IEEE Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, 23 - 25 April 2014, pp.1540-1543
- XLVI. **Analysis of Widely-used Descriptors for Finger-vein Recognition**
Yousefi F., Sivri E., KAYA Ö., Suloglu S., KALKAN S.
9th International Conference on Computer Vision Theory and Applications (VISAPP), Lisbon, Portugal, 5 - 08 January 2014, pp.564-571
- XLVII. **Recurrent Slow Feature Analysis for Developing Object Permanence in Robots**
ÇELİKKANAT H., ŞAHİN E., KALKAN S.
IROS Workshop on Neuroscience and Robotics, 03 November 2013
- XLVIII. **Co-learning nouns and adjectives**
Orhan G., Olgunsoylu S., Şahin E., Kalkan S.
2013 IEEE 3rd Joint International Conference on Development and Learning and Epigenetic Robotics, ICDL 2013, Osaka, Japan, 18 - 22 August 2013
- XLIX. **Learning Social Affordances and Using Them for Planning**
Uyanık K. F., Çalışkan Y., Bozcuoğlu A. K., Yürüten O., Kalkan S., Şahin E.
Proceedings of the Annual Meeting of the Cognitive Science Society, Berlin, Germany, 31 July - 03 August 2013, pp.3604-3609
- L. **Multimodal Stereo Vision Using Mutual Information with Adaptive Windowing**
Yaman M., Kalkan S.
Int. IAPR Conference on Machine Vision and Applications, Kyoto, Japan, 20 - 23 May 2013, vol.1
- LI. **Global Binary Patterns A Novel Shape Descriptor**
Erdal S., Kalkan S.
Int. IAPR Conference on Machine Vision and Applications, Kyoto, Japan, 20 - 23 May 2013, vol.1
- LII. **Relating affordances with verbs, nouns and adjectives Sağlarlık ile fiiller, isimler ve sıfatların ilişkilendirilmesi**
Kalkan S., Yürüten O., Şahin E.
2013 21st Signal Processing and Communications Applications Conference, SIU 2013, Haspolat, Turkey, 24 - 26 April 2013
- LIII. **A comprehensive database for border ownership Sinir Sahipliği İçin Kapsamli Bir Veri Tabanı**
Akkuş M. A., Topuz G., Özkan B., Kalkan S.
2013 21st Signal Processing and Communications Applications Conference, SIU 2013, Haspolat, Turkey, 24 - 26 April 2013
- LIV. **A novel shape descriptor: Intersection consistency histograms Yeni bir şekil betimleyici: Kesişimlerin tutarlılığı histogram**
Sivri E., Kalkan S.
2013 21st Signal Processing and Communications Applications Conference, SIU 2013, Haspolat, Turkey, 24 - 26 April 2013
- LV. **Extraction of border ownership information by conditional random field model Koşullu rastgele alan modeli ile sinir sahipliği bilgisi çıkarımı**
Özkan B., Kalkan S.
2013 21st Signal Processing and Communications Applications Conference, SIU 2013, Haspolat, Turkey, 24 - 26 April 2013
- LVI. **Learning adjectives and nouns from affordances on the iCub humanoid robot**
Yürüten O., Uyanık K. F., Çalışkan Y., Bozcuoğlu A. K., ŞAHİN E., KALKAN S.
12th International Conference on Simulation of Adaptive Behavior, SAB 2012, Odense, Denmark, 27 - 30 August 2012, vol.7426 LNAI, pp.330-340
- LVII. **Human and robotics hands grasping danger**
ANELLİ F., NICOLETTI R., KALKAN S., ŞAHİN E., BORGHI A. M.

International Joint Conference on Neural Networks (IJCNN), Brisbane, Australia, 10 - 15 June 2012

- LVIII. Learning affordances for categorizing objects and their properties**
Dağ N., Atıl I., KALKAN S., ŞAHİN E.
2010 20th International Conference on Pattern Recognition, ICPR 2010, İstanbul, Turkey, 23 - 26 August 2010, pp.3089-3092
- LIX. Affordances and Emergence of Concepts**
Atıl I., Dağ N., Kalkan S., Şahin E.
Proceedings of the Tenth International Conference on Epigenetic Robotics , Lund, Sweden, 5 - 07 November 2010, pp.1-8
- LX. Using 3D contours and their relations for cognitive vision and robotics**
Başeski E., Bodenhausen L., Pugeault N., KALKAN S., Piater J., Krüger N.
2009 24th International Symposium on Computer and Information Sciences, ISCIS 2009, Guzelyurt, Cyprus (Gkry), 14 - 16 September 2009, pp.409-414
- LXI. Bayesian classification of image structures**
Goswami D., KALKAN S., Krüger N.
16th Scandinavian Conference on Image Analysis, SCIA 2009, Oslo, Norway, 15 - 18 June 2009, vol.5575 LNCS, pp.676-685
- LXII. A Signal-Symbol Loop Mechanism For Enhanced Edge Extraction**
Kalkan S., Wörgötter F., Yan S., Krüger V., Krüger N.
Proceedings of the Third International Conference on Computer Vision Theory and Applications , Funchal, Portugal, 22 - 25 January 2008, pp.214-221
- LXIII. DEPTH PREDICTION AT HOMOGENEOUS IMAGE STRUCTURES**
Kalkan S., Wörgötter F., Krüger N.
Proceedings of the Third International Conference on Computer Vision Theory and Applications, Funchal, Portugal, 22 - 25 January 2008, pp.520-527
- LXIV. Relations Between Reconstructed 3D entities**
Pugeault N., Kalkan S., Wörgötter F., Başeski E., Krüger N.
Proceedings of the Third International Conference on Computer Vision Theory and Applications, Funchal, Portugal, 22 - 25 January 2008, pp.186-193
- LXV. Semantic Reasoning for Scene Interpretation**
Jensen L. B. W., Başeski E., Kalkan S., Pugeault N., Woergoetter F., Krueger N.
4th International Cognitive Vision Workshop (ICVW 2008), Santorini, Greece, 12 - 15 May 2008, vol.5329, pp.121-123
- LXVI. A scene representation based on multi-modal 2D and 3D features**
Başeski E., Kraft D., Pugeault N., Wörgötter F., KALKAN S., Krüger N.
2007 IEEE 11th International Conference on Computer Vision, ICCV, Rio de Janeiro, Brazil, 14 - 21 October 2007
- LXVII. Improving junction detection by semantic interpretation**
Kalkan S., Shi Y., Pilz F., Krüger N.
Proceedings of the Second International Conference on Computer Vision Theory and Applications , Barcelona, Spain, 8 - 11 March 2007, pp.264-271
- LXVIII. Statistical analysis of second-order relations of 3D structures**
Kalkan S., Wörgötter F., Krüger N.
Proceedings of the Second International Conference on Computer Vision Theory and Applications, Barcelona, Spain, 8 - 11 March 2007, pp.13-20
- LXIX. Utilizing semantic interpretation of junctions for 3D-2D pose estimation**
Pilz F., Shi Y., Grest D., Pugeault N., KALKAN S., Krüger N.
3rd International Symposium on Visual Computing, ISVC 2007, Lake Tahoe, NV, United States Of America, 26 - 28 November 2007, vol.4841 LNCS, pp.692-701
- LXX. Statistical analysis of local 3D structure in 2D images**
KALKAN S., Wörgötter F., Krüger N.
2006 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, CVPR 2006, New York,

United States Of America, 17 - 22 June 2006, vol.1, pp.1114-1121

LXXI. Optic Flow Statistics and Intrinsic Dimensionality

Kalkan S., Calow D., Felsberg M., Wörgötter F., Lappe M., Kruger N.

Brain Inspired Cognitive Systems, Stirling, United Kingdom, 29 August - 01 September 2004, pp.1-7

Supported Projects

ŞAHİN E., ANKARALI M. M., KALKAN S., SARANLI U., YAZICIOĞLU Y., CİNBİŞ R. G., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, Robotik Teknolojileri Araştırma, Geliştirme ve Eğitim Merkezi (ROMER), 2019 - Continues
Gürsel Dino I., Turan R., Akgül Ç., Göl M., Kalkan S., Taylan O., Horizon Europe Project, LEGOFIT: Adaptable technological solutions based on early design actions for the construction and renovation of Energy Positive Homes, 2023 - 2027
Gürsel Dino İ., Kalkan S., Akgül Ç., Göl M., Horizon Europe Project, UP2030: Urban Planning and design ready for 2030, 2023 - 2026

Alatan A. A., Ankaralı M. M., Saranlı A., Kalkan S., Köksal A., Project Supported by Defense Industry, INTEGRATION OF IMAGE PROCESS ALGORITHMS INTO NAVIGATION APPLICATIONS PROJECT, 2022 - 2024

Gürsel Dino I., Kalkan S., Akgül Ç., Gerçek Kurt D., TÜBİTAK Project, MAKİNE ÖĞRENMESİ VE SİMÜLASYON TABANLI, İKLİM DEĞİŞİKLİĞİNE YÖNELİK KENTSEL BİNA ENERJİ MODELLEMESİ (KBEM) İÇİN ARAÇ GELİŞTİRİLMESİ , 2021 - 2023

Kalkan S., Alatan A. A., Akyüz A. O., Koz A., TÜBİTAK International Bilateral Joint Cooperation Program Project, H3DR Camera: Smart embedded camera with multi-exposure & multi-view capability for autonomous vehicles, 2020 - 2022

Kalkan S., Acartürk C., TÜBİTAK Project, Multiuser Eyetracking Platform for Social Gaze, 2017 - 2020

KALKAN S., UĞURLU H. İ., SARANLI A., Project Supported by Higher Education Institutions, İnsansız Hava ve Kara Araçları ile Gezinme, 2018 - 2019

SAHİLLİOĞLU Y., KALKAN S., TÜBİTAK Project, 3b Sahne Etiketleme Ve Sentezleme, 2016 - 2019

AKBAŞ E., KALKAN S., Project Supported by Other Private Institutions, İNSANSIZ HAVA ARAÇLARINDA TEK VE ÇİFT KAMERA İLE İNİŞ NOKTASINA BAĞIL KONUM KESTİRİMİ, 2018 - 2018

KALKAN S., TÜBİTAK Project, Robotlarda Bağlam, 2016 - 2018

KALKAN S., TÜBİTAK Project, Acquiring Accurate Visual Information from Images Using Border Ownership, 2014 - 2015

KALKAN S., TÜBİTAK Project, İnsansı Robotlarda Hiyerarşik Kavram Gelişimi, 2012 - 2015

KALKAN S., TÜBİTAK Project, Sınır Sahipliği İle Görüntülerden Hassas Görsel Bilgi Edinimi, 2012 - 2015

KALKAN S., Project Supported by Higher Education Institutions, Çoklu robot ve insan etkilesimi, 2012 - 2013

Activities in Scientific Journals

IEEE Robotics and Automation Letters, Editor, 2021 - Continues

Memberships / Tasks in Scientific Organizations

International Collaboration Projects Research Funding Group, Member of Advisory Board, 2021 - Continues, Turkey

Scientific Refereeing

IEEE ROBOTICS AND AUTOMATION LETTERS, Journal Indexed in SCI-E, January 2019

IEEE ROBOTICS AND AUTOMATION LETTERS, Other Indexed Journal, October 2018

IEEE-ASME TRANSACTIONS ON MECHATRONICS, SCI Journal, September 2018

Adaptive Behavior, Journal Indexed in SSCI, March 2018

Teknokent Proje Hakemliği, Other Journals, March 2018

Uni. Southern Denmark - Doktora Tez Jürisi Üyeliği, Other journals, January 2018
TUBITAK Project, July 2016

Scientific Consultations

Nurd Comodo, Scientific Consultancy, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, Turkey, 2019 - Continues

Tasks In Event Organizations

Kalkan S., Akbaş E., Cinbiş R. G., Nesne Tespiti Probleminde Güncel İlerlemeler, Workshop Organization, Turkey, Kasım 2022

Kalkan S., Güneş H., Parisi G., Lifelong Learning for Long-term Human-Robot Interaction (LL4LHRI), Workshop Organization, Italy, Eylül 2020

Akbaş E., Kalkan S., Imbalance Problems in Computer Vision, Workshop Organization, United Kingdom, Ağustos 2020

Scientific Research / Working Group Memberships

Görüntü İşleme Laboratuvarı (Imagelab), Middle East Technical University, Türkiye, image.ceng.metu.edu.tr, 2009 - Continues

Kovan Araştırma Laboratuvarı, Middle East Technical University, Türkiye, kovan.ceng.metu.edu.tr, 2009 - Continues

Mobility Activity

Sabbatical Leave, Other, University of Cambridge, England, 2019 - 2020

Metrics

Publication: 108

Citation (WoS): 932

Citation (Scopus): 1370

H-Index (WoS): 14

H-Index (Scopus): 16

Congress and Symposium Activities

Neural Information Processing Systems, Attendee, Canada, 2018

IROS 2018 - International Conference on Intelligent Robots, Attendee, Spain, 2018

15th European Conference on Computer Vision, Attendee, Germany, 2018

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA), Attendee, Australia, 2018

Invited Talks

Yapay Zekâ ve Temel Kavramlar, Workshop, Setur, Turkey, December 2021

Addressing Imbalance Problems, Seminar, Boğaziçi Üniversitesi, Turkey, November 2021

Yapay Öğrenmede Önyargı ve Tarafsızlık, Conference, Sinyal İşleme ve Uygulamaları (SİU) Kongresi, Turkey, June 2021

Yapay Zeka ve Temel Kavramlar, Seminar, CodeFest, Turkey, June 2021

Yapay Zekâ ve Temel Kavramları, Seminar, Aydın Adnan Menderes Üniversitesi, Turkey, May 2021

Derin Öğrenme ile Bilgisayarlı Görüye Giriş, Workshop, TÜBİTAK ULAKBİM EuroCC Projesi, Turkey, February 2021

Yapay Zekâ ve Temel Kavramları, Yapay Zekânın Kullanıldığı Alanlar, Seminar, Hasan Kalyoncu University, Turkey, December 2020

Addressing Imbalance in Object Detection, Seminar, University of Cambridge, United Kingdom, June 2020

Zekânın Üç Silahşörleri: Algı, Eylem ve Dil, Seminar, Bilgisayar Mühendisleri Odası, Turkey, May 2019

Context in robots, Workshop, Orta Doğu Teknik Üniversitesi, Turkey, December 2018

Derin Öğrenmeye Giriş , Seminar, Gazi Üniversitesi, Turkey, December 2018

Context in robots, Workshop, IROS2018 Workshop on Semantic Policy and Action Representations for Autonomous Robots (SPAR), Spain, October 2018

Context in robots, Seminar, Tobb Ekonomi Ve Teknoloji Üniversitesi, Turkey, February 2018

Derin öğrenmeye giriş, Seminar, Simsoft Bilgi Teknolojileri, Turkey, January 2018

Context in robots, Seminar, Odense Universitet (Odense University), Denmark, January 2018

Scholarships

BIDEB2219 , TUBITAK, 2020 - 2020

Awards

Kalkan S., Bilim Akademisi BAGEP Ödülü, Bilim Akademisi, April 2020

Kalkan S., Şahin E., Çelikkanat H., Pugeault N., Guerin F., IEEE Transactions on Outstanding Paper Award, Ieee, August 2019

KALKAN S., Yılın Tezi Ödülü, Prof. Dr. Mustafa Parlar Vakfı, December 2018

Kalkan S., Instructor of the year, Prof. Dr. Mustafa Parlar Vakfı, December 2014

Non Academic Experience

TSK

University of Goettingen