## **CIGDEM BEYAN**

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Web of Science ResearcherID: AAA-4235-2019

## **EDUCATION**

#### 2015 PhD.

University of Edinburgh, UK School of Informatics Institute of Perception, Action and Behaviour (IPAB)

Thesis Title: Detection of Unusual Fish Trajectories from Underwater Videos

First Supervisor: Prof. Dr. Robert Fisher Second Supervisor: Dr. Vittorio Ferrari

#### 2010 MSc.

Middle East Technical University (METU), TURKEY Graduate School of Informatics Department of Information Systems

GPA: 3.88/4.00

Thesis Title: Object Tracking for Surveillance Applications Using Thermal and Visible Band

Video Data Fusion

Supervisor: Prof. Dr. Alptekin Temizel

## 2008 BEng.

Baskent University, TURKEY
Faculty of Engineering
Department of Computer Engineering

GPA: 3.64/4.00 (High Honour, ranked 2<sup>nd</sup> among the graduates of that year)

Thesis Title: Cancer Diagnosis with Gene Expression Data

Supervisor: Prof. Dr. Hasan Ogul

#### **CURRENT WORK POSITION**

#### March 2021-

Assistant Professor Department of Information Engineering and Computer Science (DISI) University of Trento (UNITN), Trento, Italy

## May 2021-

Affiliated Researcher Pattern Analysis & Computer Vision (PAVIS) Research Line Istituto Italiano di Tecnologia (IIT), Genoa, Italy

## PREVIOUS WORK POSITIONS

## September 2015- March 2021

Postdoctoral Researcher
Pattern Analysis & Computer Vision (PAVIS) Research Line
Istituto Italiano di Tecnologia (IIT), Genoa, Italy
Major Responsibilities: carrying out research on human behaviour understanding,
particularly nonverbal communication analysis of human-human social interactions (social
signal processing), co-supervising PhD students, organizing, planning and management of
EU and national project proposals.

## May 2015- July 2015

Course Assistant for preparing practical assignments for Introduction to Vision and Robotics http://www.inf.ed.ac.uk/teaching/courses/ivr/
University of Edinburgh
School of Informatics
Edinburgh, UK

## **September 2011- May 2015**

Guest Lecturer, Teaching Assistant, Tutor, Marker and Demonstrator University of Edinburgh School of Informatics Edinburgh, UK

#### September 2008- September 2011

Research & Teaching Assistant
Baskent University
Department of Computer Engineering
Ankara, Turkey

## RESEARCH INTEREST

- Multimodal Analysis of Nonverbal Social Interactions & Social Signal Processing (e.g., Leadership Identification, Personality Trait Analysis, Deception Detection, Affect Classification, etc.)
- Computer Vision & Multimedia (e.g., human/animal behaviour understanding, action recognition, trajectory analysis, anomaly detection, active speaker detection, etc.)
- Machine & Deep Learning
   (e.g., classification of imbalanced data, active learning, unsupervised learning, domain adaptation, self-supervised learning, representation learning, etc.)

## **RESEARCH PROJECTS\***

## April 2021-

ARTEMIS- Assistive Robots wiTh EMotlonal Skills

Funded by Fondazione Valorizzazione Ricerca (VRT)

Developing a new approach based on artificial intelligence methods that allows social robots to interpret the emotional state of patients and assess their level of #comfort in interacting with the robot.

In collaboration with: Elisa Ricci (Uni. of Trento), Riccardo Franceschini (Uni. of Trento) and Federica Arrigoni (Uni. of Trento)

#### March 2021-

Al4Media

project funded by European Union Funding for Research and Innovation Horizon 2020 (GA No.951911) aspires to become a Centre of Excellence engaging a wide network of researchers across Europe and beyond, focusing on delivering the next generation of core AI advances and training to serve the Media sector, while ensuring that the European values of ethical and trustworthy AI are embedded in future AI deployments. https://www.ai4media.eu/

## September 2019- December 2020

Multimodal Nonverbal Behavior Analysis of Public Speakers In collaboration with: Omer Sumer (Uni. of Tübingen, Germany), Prof. Dr. Ulrich Trautwein (Uni. of Tübingen, Germany) and Prof. Dr. Enkelejda Kasneci (Uni. of Tübingen, Germany)

## September 2015- September 2019

Multimodal Identification of Emergent Leaders in Small Group Social Interactions https://www.iit.it/datasets/leadership-corpus-dataset

In collaboration with: Dr. Francesca Capozzi (McGill University, Canada), Prof. Dr. Cristina Becchio (IIT C'MON, Uni. of Turin, Italy), and Prof. Dr. Vittorio Murino (IIT PAVIS, Italy)

## **September 2011- May 2015**

Fish4Knowledge (EU 7<sup>th</sup> Framework Programme [FP7/2007-2013] under grant agreement 257024, 2011-2013)

Behaviour analysis of fish in live undersea video recordings (a part of PhD. Thesis) http://groups.inf.ed.ac.uk/f4k/

In collaboration with: Dr. Bastiaan J. Boom (Uni. of Edinburgh, UK), Dr. Simone Palazzo (Uni. of Catania, Italy), Dr. Concetto Spampinato (Uni. of Catania, Italy), and Prof. Dr. Robert Fisher (Uni. of Edinburgh, UK)

## September 2009- December 2010

METU Scientific Research Project Funding (BAP)

Abandoned-Object Detection System Using Thermal and Visible Band Video Cameras https://blog.metu.edu.tr/atemizel/projects/

METU Computer Vision and Remote Sensing research Group

https://ii.metu.edu.tr/metu-computer-vision-and-remote-sensing-research-group

In collaboration with: Dr. Ahmet Yigit (METU, Turkey) and Prof. Dr. Alptekin Temizel (METU, Turkey)

## September 2009- September 2011

Probabilistic Modelling of miRNA mRNA Duplexes

funded by The Scientific and Technological Research Council of Turkey (Tubitak)

Bioinference Research Group

http://www.baskent.edu.tr/~hogul/research.htm

*In collaboration with:* Prof. Dr. Hasan Ogul (Baskent Uni., Turkey)

\*PhD., MSc. and BEng. thesis (see section "Education") as well as PhD co-supervised projects (see section "supervision experience") are excluded from this section.

## AWARDS AND DISTINCTIONS

- The winner of the Researcher Type A (Temporary Assistant Professor) selection in University of Trento, Department of Information Engineering and Computer Science https://www.unitn.it/ateneo/bando-dr-valcomp/64256/valutazione-comparativa-a-n-1-posto-di-ricercatore-post-doc-art-24-co-3-lett-a-l-2402010-settore-c
- Became Associate Fellow of the Higher Education Academy in recognition of attainment against the UK Professional Standards Framework for teaching and learning support in higher education (18/11/2014). http://www.heacademy.ac.uk/
- Received Edinburgh Global Overseas Research Scholarship
   http://www.ed.ac.uk/schools-departments/student-funding/postgraduate/international/global/research
- Received Best Thesis Award for MSc. Thesis
   Given by Prof. Dr. Mustafa N. Parlar Education and Research Foundation, Middle
   East Technical University (METU), Ankara, Turkey, Thesis of the year award, 2011.
   https://parlar.org.tr/
- Received 2010-2011 Academic year Best Thesis Award for MSc. Thesis
  Given by Middle East Technical University to Postgraduate Thesis including all
  institutes. https://ii.metu.edu.tr/graduate-awards
- Received Alper Atalay Best Student Paper Award, first place 19th IEEE Conference on Signal Processing and Communications Applications, April 2011, http://vpa.sabanciuniv.edu/links/bupam/alper/odul.htm
- Received SPIE Student Travel Grant, SPIE Defense, Security, and Sensing Symposium, April 2011.
- Received **2007-2008 Academic Year Baskent University Academic Achievement Scholarship**, High Honour (GPA: 3.72/4.00)
- Received **2006-2007 Academic Year Baskent University Academic Achievement Scholarship**, High Honour (GPA: 3.73/4.00)

## **SCIENTIFIC ACTIVITIES**

#### **Associate Editor**

- ICES Journal of Marine Science (18 September 2018- ):
  - Covering area of applications of computer vision and machine learning in marine science. https://academic.oup.com/icesjms/pages/Editorial Board
  - o Motivated, developed and edited article theme set: Applications of machine learning and artificial intelligence in marine science, published on 20.07.2020, (received 850 reads until 04.08.2020), together with Dr. Howard I. Browman (fishlarvae.org, Norway). https://academic.oup.com/icesjms/article/77/4/1267/5873749

#### **Guest Editor**

- Frontiers in Robotics and AI (2018-2020):
  - o Motivated, developed and edited research topic: Computational Approaches for Human-Human and Human-Robot Social Interactions (37773 total views and 2171 article downloads accessed on 06.04.2020), together with Prof. Dr. Vittorio Murino (IIT PAVIS, Italy, Uni. Of Verona, Italy, Huawei Technologies, Ireland), Dr. Gentiane Venture (Tokyo Uni. of Agriculture and Technology, Japan) and Dr. Agnieszka Wykowska (IIT S4HRI, Italy). https://www.frontiersin.org/research-topics/8447/computational-approaches-for-human-human-and-human-robot-social-interactions

## **Workshop Co-organizer**

• 2<sup>nd</sup> Workshop on Applications of Egocentric Vision (EgoApp) in conjunction with International Conference on Pattern Recognition (ICPR) 2020, Milan, Italy, together with Maya Aghaei (NHL Stenden University, The Netherlands), Fernando De la Torre (Facebook Research, USA), Vittorio Murino (Huawei Technologies, Ireland), Lorenzo Natale (IIT Humanoid Sensing and Perception, Italy) and Alessio Del Bue (IIT PAVIS, Italy).

https://egoappworkshop2020.wordpress.com/

• Applications of Egocentric Vision Workshop (EgoApp) in conjunction with British Machine Vision Conference (BMVC) 2019, Cardiff, UK, together with Maya Aghaei (IIT PAVIS, Italy), Fernando De la Torre (Facebook Research, USA) and Vittorio Murino (IIT PAVIS, Italy). https://egoappworkshop.wordpress.com/

## **Journal Reviewer (16)**

- IEEE Transactions on Multimedia
- IEEE Transactions on Affective Computing
- IEEE Transactions on Knowledge and Data Engineering
- Pattern Recognition
- Computer Vision and Image Understanding
- Machine Vision and Applications
- IEEE Access
- PLOS ONE
- IET Image Processing
- Expert Systems with Applications
- EURASIP Journal on Image and Video Processing
- ICES Journal of Marine Science
- Frontiers Psychology
- Electronics Letters
- IEEE Robotics and Automation Letters
- Encyclopedia of Image Processing

## **International Conference / Workshop Reviewer (9)**

- European Conference on Computer Vision (ECCV) 2020
- ACM International Conference on Multimedia (ACMMM) 2019, 2020, 2021
- ACM International Conference on Multimodal Interaction (ICMI) 2019, 2020
- Winter Conference on Applications of Computer Vision (WACV) 2021
- International Conference on Pattern Recognition (ICPR) 2014, 2016, 2018, 2020
- International Conference on Affective Computing and Intelligent Interaction (ACII) 2019, 2021
- International Conference on Motion and Computing (MOCO) 2018
- ICCV Workshop on Action Recognition with a Large Number of Classes (THUMOS) 2013
- ECCV Workshop on Multimodal Learning and Applications (MULA) 2018

## **Program Committee Member (5)**

- ACM International Conference on Multimedia (ACMMM) 2019, 2020
- ACM International Conference on Multimodal Interaction (ICMI) 2019, 2020, 2021
- International Conference on Human Computer Interaction Theory and Applications (HUCAPP) 2019, 2020, 2021

HUCAPP is a part of VISIGRAPP (Int. Joint Conf. on Computer Vision, Imaging and Computer Graphics Theory and Applications) http://www.hucapp.visigrapp.org/ProgramCommittee.aspx?y=2019

- Doctoral Consortium of the Int. Conf. on Affective Computing and Intelligent Interaction (ACII) 2019
- International Workshop on Corpora And Tools for Social skills annotation @ICMI2021 https://sites.google.com/view/cats2021workshop/home

## **Invited Speaker**

- Investigation of Social Interactions through Visual Data Analysis In Department of Department of Information Engineering and Computer Science, University of Trento, Trento, Italy, October 14, 2020.
- Social Signal Processing Approaches for Emergent Leadership In Department of Multimedia Informatics, Graduate School of Informatics, Middle East Technical University, Ankara, Turkey, December 27, 2017. https://ii.metu.edu.tr/announcement/social-signal-processing-approaches-dr-cigdem-beyan

#### **Invited Conference Session Moderator**

• Social Signal Processing Breakout Discussion Session at ACM International Conference on Multimodal Interaction (ICMI) 2020. https://twitter.com/Acmlcmi/status/1321089713629966340

## SUPERVISION EXPERIENCE

#### 2015-2018

Nicolò Carissimi

PhD Thesis *co-supervising* together with Prof. Dr. Vittorio Murino *PhD Thesis Title*: Investigating Social Interactions Using Multimodal Nonverbal Features

#### 2017-2020

Muhammad Shahid

PhD Thesis *co-supervising* together with Prof. Dr. Vittorio Murino *PhD Topic:* Social Interactions Analysis through Deep Visual Nonverbal Features

#### 2019-

Giancarlo Paoletti

PhD Thesis *co-supervising* with Dr. Jacopo Cavazza and Dr. Alessio Del Bue *PhD Topic:* Unsupervised Feature Learning for Human Action Recognition

#### 2020-

Sanket Kumar Thakur

PhD Thesis co-supervising with Dr. Alessio Del Bue

PhD Topic: Multimodal Visual Focus of Attention Detection

## **TEACHING EXPERIENCE**

#### **September 2011- May 2015**

Tutor, Lab Demonstrator, Teaching Assistant, Marker and Guest Lecturer in University of Edinburgh School of Informatics, Edinburgh, UK. All courses were delivered in English.

- Advanced Vision (Year 4 Undergraduate & MSc):
  - Marker (33+33 hours) & Guest Lecturer (2 hours) http://www.inf.ed.ac.uk/teaching/courses/av/
- Introductory Applied Machine Learning (Year 3 Undergraduate):
  - Tutor (8+8 hours) http://www.inf.ed.ac.uk/teaching/courses/iaml/
- o Database Systems (Year 3 Undergraduate):
  - Tutor (24 hours) & Marker (55 hours) http://homepages.inf.ed.ac.uk/libkin/teach/dbs13/
- o INF-1-DA: Informatics 1 Data and Analysis (Year 1 Undergraduate):
  - Tutor (16+16+16 hours) & Marker (25+25+25 hours)
  - http://www.inf.ed.ac.uk/teaching/courses/inf1/da/2013-2014/
- INF-1-CP: Computer Programming: Skills and Concepts (Year 1 Undergraduate):
   Demonstrator (20 hours) & Teaching Assistant (42+36 hours)
   http://www.inf.ed.ac.uk/teaching/courses/cp/

## September 2008- September 2011

Teaching Assistant (equivalent to Tutor, Lab Demonstrator and Marker) in Baskent University, Department of Computer Engineering, Ankara, Turkey. All courses were delivered in Turkish.

- BIL105 Programming Laboratory 1
  - Programming with C (Year 1 Undergraduate):
  - 28 practice hours per section and year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501105
- BIL106 Programming Laboratory 2
  - Programming with C++ (Year 1 Undergraduate):
  - 28 practice hours per section and year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=503&ders=501106
- BIL231 Discrete Structures (Year 2 Undergraduate):
  - 14 practice hours per year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501231
- BIL240 Programming Languages (Year 2 Undergraduate):
  - 14 practice hours per year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501240
- BIL284 Assembly Languages (Year 2 Undergraduate):
  - 14 practice hours per year
- BIL364 Automata Theory (Year 3 Undergraduate):
  - 14 practice hours per year
- BIL218 Computer Organization (Year 2 Undergraduate):
  - 14 practice hours per year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501218
- BIL344 Database Systems (Year 3 Undergraduate):
  - 28 practice hours per year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501344

- BIL429 Computer Networks (Year 4 Undergraduate):
   28 practice hours per year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501429
- BIL464 Multimedia Systems (Year 4 Undergraduate):
  - 14 practice hours per year
  - http://angora.baskent.edu.tr/bilgipaketi/?dil=EN&menu=akademik&inner=katalog&birim=501&ders=501489

#### **OTHER COMPETENCES**

## **Programming Languages and Tools:**

Python, MATLAB, C/C++, Java, SQL, Assembly, PERL, Haskell, HTML, CSS, LaTex, Anaconda, TensorFlow, PyCharm, Git, OpenCV, Weka, R, MS Visual Studio

## **Operating Systems:**

Windows, Linux-based systems

## Languages:

Turkish (Native), English (Advanced), Italian (Intermediate)

#### **MEMBERSHIPS**

## 2018 -

Association for Computing Machinery (ACM)

#### 2014 -

Associate Fellow of the UK Higher Education Academy

#### 2013 -

- Institute of Electrical and Electronics Engineers (IEEE)
- The British Machine Vision Association (BMVA) Student Membership (interrupted in 2014).

## **OTHER ROLES**

## 23-27 July 2018

Voluntary Work in DeepLearn 2018: International Summer School on Deep Learning, Genoa, Italy

Welcoming the participants, management of the meeting rooms, technical support. Interaction with participants from more than 80 countries, for a total of 72 hours of activities.

## **November 2011- July 2014**

**Voluntary Work** 

Turkish teacher for children and adults in Speak Turkish Edinburgh, a registered charity (SC043391) dedicated to fostering a wider understanding of Turkish language and culture in Edinburgh, Scotland, UK.

This duty covered various levels of classes such as age of 10-18 and adults.

## October 2014- April 2015

President of University of Edinburgh Turkish Society

## **April 2014- October 2014**

Secretary of University of Edinburgh Turkish Society
Actively worked on establishment (February 2014) of the society.

#### 2008

Yearbook Preparation Community Department Coordinator Baskent University Faculty of Engineering Department Of Computer Engineering

#### 2007

Baskent University Computer Society Secretary of Administrative Body

## **PUBLICATION LIST**

## **Google Scholar**

Citations: 606, h-index: 12, i10-index: 16, access on 26.05.2021 https://scholar.google.com/citations?user=VmjUxckAAAAJ&hl=en

## Peer Reviewed Book Chapters (3)

[B03]	<b>C. Beyan</b> , "Unusual Trajectory Detection: Advances", In Encyclopedia of Image Processing, 1st Edition, Phillip A. Laplante (Editor), Taylor & Francis Group: New York, pp: 766-781. doi: 10.1201/9781351110273-140000116
[B02]	<b>C. Beyan</b> , "Fish Behavior Analysis", In Fish4Knowledge: Collecting and Analyzing Massive Coral Reef Fish Video Data, Chen-Burger et al. (Editors), Springer. doi: 10.1007/978-3-319-30208-9
[B01]	C. Beyan, and R. B. Fisher, "Hierarchal Decomposition for Unusual Fish Trajectory Detection", In Computer Vision and Pattern Recognition in Environmental Informatics, Zhou et al. (Editors), IGI Global. doi: 10.4018/978-1-4666-9435-4.ch001

## **Peer Reviewed Journal Papers (16)**

[J16]	<b>C. Beyan*</b> , M. Shahid* and V. Murino, "RealVAD: A Real-world Dataset for Voice Activity Detection", IEEE Transactions on Multimedia, Early Access 2020. doi: 10.1109/TMM.2020.3007350  * indicates equal contribution
[J15]	<b>C. Beyan</b> , and H. I. Browman, "Setting the stage for the machine intelligence era in marine science", ICES Journal of Marine Science, vol. 77, no. 4, pp. 1267–1273, June 2020. doi: 10.1093/icesjms/fsaa084
[J14]	<b>C. Beyan</b> , V. Murino, G. Venture and A. Wykowska, "Editorial: Computational Approaches for Human-Human and Human-Robot Social Interactions", Frontiers in Robotics and AI, vol. 7, no. 55, 2020. doi: 10.3389/frobt.2020.00055.
[IJ13]	C. Beyan, A. Zunino, M. Shahid and V. Murino, "Personality Traits Classification Using Deep Visual Activity-based Nonverbal Features of Key-Dynamic Images", IEEE Transactions on Affective Computing, Early Access 2019. doi: 10.1109/TAFFC.2019.2944614.

[IJ12]	F. Capozzi, <b>C. Beyan</b> , A. Pierro, A. Koul, V. Murino, S. Livi, A. P. Bayliss, L. Ristic, C. Becchio, "Tracking The Leader: Gaze Behaviour In Group Interactions", ISCIENCE, 16, pp. 242-249, 2019. doi: 10.1016/j.isci.2019.05.035.
[IJ11]	<b>C. Beyan</b> , V. M. Katsageorgiou, V. Murino, "A Sequential Data Analysis Approach to Detect Emergent Leaders in Small Groups", IEEE Transactions on Multimedia, vol. 21, no. 8, pp. 2107-2116, 2019. doi: 10.1109/TMM.2019.2895505.
[IJ10]	<b>C. Beyan</b> , V. M. Katsageorgiou, R. Fisher, "Extracting Statistically Significant Behaviour from Fish Tracking Data With and Without Large Dataset Cleaning", IET Computer Vision, vol. 12, no. 2. pp. 162-170, 2018. doi: 10.1049/iet-cvi.2016.0462.
[1709]	<b>C. Beyan</b> , F. Capozzi, C. Becchio, and V. Murino, "Prediction of the Leadership Style of an Emergent Leader Using Audio and Visual Nonverbal Features", IEEE Transactions on Multimedia, vol. 20, no. 2, pp. 441-456, 2018. doi: 10.1109/TMM.2017.2740062.
[IJ08]	<b>C. Beyan</b> , B. Boom, J. Liefhebber, K-T Shao, and R. Fisher, "Natural Swimming Speed of Dascyllus reticulatus Increases with Water Temperature", ICES Journal of Marine Science, vol. 72, no. 8, pp. 2506-2511, 2015. doi: 10.1093/icesjms/fsv104.
[IJ07]	<b>C. Beyan</b> , R. Fisher, "Classifying Imbalanced Data Sets Using Similarity Based Hierarchical Decomposition", Pattern Recognition, vol. 48, no. 5, pp. 1653-1672, 2015. doi: 10.1016/j.patcog.2014.10.032.
[IJ06]	<b>C. Beyan</b> , A. Temizel, "A Multimodal Approach for Individual Tracking of People and Their Belongings", Imaging Science Journal, vol. 63, no. 4, pp. 192-202, 2015. doi: 10.1179/1743131X14Y.0000000101.
[IJ05]	S. McDonagh, <b>C. Beyan</b> , P. X. Huang and R. B. Fisher, "Applying semi-synchronised task farming to large-scale computer vision problems", International Journal of High Performance Computing Applications, vol. 29. no. 4, pp. 1-24, 2015. doi: 10.1177/1094342014532965.
[IJ04]	B. J. Boom, J. He, S. Palazzo, P. X. Huang, <b>C. Beyan</b> , H. Chou, F. Lin, C. Spampinato, R. B. Fisher, "A research tool for long-term and continuous analysis of fish assemblage in coral-reefs using underwater camera footage", Ecological Informatics, vol. 23, pp. 83-97, 2014. doi: 10.1016/j.ecoinf.2013.10.006.

[IJ03]	C. Spampinato, E. Beauxis-Aussalet, S. Palazzo, <b>C. Beyan</b> , J. van Ossenbruggen, J. He, B. Boom, X. Huang, "A rule-based event detection system for real-life underwater domain", Machine Vision and Applications, vol. 25, no. 1, pp. 99-117, 2014. doi: 10.1007/s00138-013-0509-x.
[IJ02]	C. Beyan, A.Temizel, "Adaptive Mean-Shift for Automated Multi Object Tracking", IET Computer Vision, vol. 6 no.1 pp. 1-12, 2012. doi: 10.1049/iet-cvi.2011.0054.
[IJ01]	<b>C. Beyan</b> , A.Yigit, A.Temizel, "Fusion of Thermal and Visible Band Video for Abandoned Object Detection", SPIE Journal of Electronic Imaging, vol. 20, no. 3, 033001, 2011. doi: 10.1117/1.3602204.

# Peer Reviewed International Conference (15) & Workshop Papers (5)

[IC20]	M. Shahid, <b>C. Beyan</b> , V. Murino, "S-VVAD: Visual Voice Activity Detection by Motion Segmentation", In Proceedings of IEEE Winter Conference on Applications of Computer Vision (WACV), pp. 23332-2341, 2021. doi: ?? (~??% overall acceptance rate)
[IC19]	<b>C. Beyan</b> , M. Bustreo, M. Shahid, G. L. Bailo, N. Carissimi, A. Del Bue, "Analysis of Face-Touching Behavior in Large Scale Social Interaction Dataset". In Proceedings of ACM International Conference on Multimodal Interaction (ACM ICMI), pp. 24-32, 2020. doi: 10.1145/3382507.3418876 (37.5% overall acceptance rate)
[IC18]	G. Paoletti, J. Cavazza, <b>C. Beyan</b> , A. Del Bue, "Subspace Clustering for Action Recognition with Covariance Representations and Temporal Pruning". In Proceedings of International Conference on Pattern Recognition (ICPR), pp. 6035-6042, 2020. doi: 10.1109/ICPR48806.2021.9412060 (Accepted in first review round, which has 35,6% acceptance rate, Overall acceptance rate=43.4%, Oral presentation; overall oral presentation acceptance rate=4.4%)

[IC17]	M. Shahid*, <b>C. Beyan</b> *, V. Murino, "Voice Activity Detection by Upper Body Motion Analysis and Unsupervised Domain Adaptation". In Proceedings of International Conference on Computer Vision (ICCV) Workshops, (10 <sup>th</sup> International Workshop on Human Behavior Understanding (HBU)), 2019. doi: 10.1109/ICCVW.2019.00159 * indicates equal contribution
[IC16]	M. Shahid*, <b>C. Beyan</b> *, V. Murino, "Comparisons of Visual Activity Primitives for Voice Activity Detection". In Proceedings of Image Analysis and Processing (ICIAP), Lecture Notes in Computer Science, vol. 11751, E. Ricci, S. Rota Bulo, C. Snoek, O. Lanz, S. Messelodi, N. Sebe (eds), Springer, Cham, pp. 48-59, 2019. doi:10.1007/978-3-030-30642-7_5 (~56% overall acceptance rate)  * indicates equal contribution
[IC15]	N. Carissimi, P. Rota, <b>C. Beyan</b> , V. Murino, "Filling the Gaps: Predicting Missing Joints of Human Poses Using Denoising Autoencoders", In Proceedings of European Conference on Computer Vision (ECCV) Workshops, (9th International Workshop on Human Behavior Understanding (HBU)), pp. 364-379, 2018. doi: 10.1007/978-3-030-11012-3_29 (Oral Presentation)
[IC14]	<b>C. Beyan</b> , M. Shahid and V. Murino, "Investigation of Small Group Social Interactions Using Deep Visual Activity-Based Nonverbal Features", In Proceedings of 26 <sup>th</sup> ACM Multimedia (ACMMM), pp. 311-319, 2018. doi: 10.1145/3240508.3240685 (~27.5% overall acceptance rate)
[IC13]	N. Carissimi, <b>C. Beyan</b> , and V. Murino, "A Multi-View Learning Approach to Deception Detection", In Proceedings of 13 <sup>th</sup> IEEE International Conference on Automatic Face and Gesture Recognition (IEEE FG), pp. 599-606, 2018. doi: 10.1109/FG.2018.00095 (~47% overall acceptance rate, Oral Presentation)
[IC12]	<b>C. Beyan</b> , F. Capozzi, C. Becchio, and V. Murino, "Multi-task Learning of Social Psychology Assessments and Nonverbal Features for Automatic Leadership Identification", In Proceedings of ACM International Conference on Multimodal Interaction (ACM ICMI), pp. 451-455, 2017 doi: 10.1145/3136755.3136812 (~43% overall acceptance rate)
[IC11]	<b>C. Beyan</b> , V. M. Katsageorgiou, and V. Murino, "Moving as a Leader: Detecting Emergent Leadership in Small Groups using Body Pose", In Proceedings of 25 <sup>th</sup> ACM Multimedia (ACMMM), pp. 1425-1433, 2017. doi: 10.1145/3123266.3123404 (~28% overall acceptance rate)

[IC10]	<b>C. Beyan</b> , F. Capozzi, C. Becchio, and V. Murino, "Identification of Emergent Leaders in a Meeting Scenario Using Multiple Kernel Learning", In Proceedings of International Workshop on Advancements in Social Signal Processing for Multimodal Interaction (ASSP4MI), in conjunction with ACM International Conference on Multimodal Interaction (ACM ICMI), pp. 3-10, 2016. doi: 10.1145/3005467.3005469
[IC09]	<b>C. Beyan</b> , N. Carissimi, F. Capozzi, S. Vascon, M. Bustreo, A. Pierro, C. Becchio, and V. Murino, "Detecting emergent leader in a meeting environment using nonverbal visual features only", In Proceedings of ACM International Conference on Multimodal Interaction (ACM ICMI), pp. 317-324, 2016. doi: 10.1145/2993148.2993175 (~38% overall acceptance rate)
[IC08]	<b>C. Beyan</b> , R. B. Fisher, "Detection of Abnormal Fish Trajectories Using a Clustering Based Hierarchical Classifier", In Proceedings of British Machine Vision Conference (BMVC), pp. 1-11, 2013. doi: 10.5244/C.27.21 (~30% overall acceptance rate)
[IC07]	<b>C. Beyan</b> , R. B. Fisher, "Detecting abnormal fish trajectories using clustered and labeled data", In Proceedings of 20th IEEE International Conference on Image Processing (IEEE ICIP), pp. 1476-1480, 2013. doi: 10.1109/ICIP.2013.6738303 (~44.5% overall acceptance rate, Oral presentation)
[IC06]	<b>C. Beyan</b> , R. B. Fisher, "A Filtering Mechanism for Normal Fish Trajectories", In Proceedings of the 21st International Conference on Pattern Recognition (ICPR), pp. 2286-2289, 2012. (~48.5% overall acceptance rate)
[IC05]	B. J. Boom, P. X. Huang, <b>C. Beyan</b> , C. Spampinato, S. Palazzo, J. He, E. Beauxis-Aussalet, SI. Lin, HM. Chou, G. Nadarajan, YH. Chen-Burger, J. van Ossenbruggen, D. Giordano, L. Hardman, FP. Lin, R. B. Fisher, "Long-term underwater camera surveillance for monitoring and analysis of fish populations", International Workshop on Visual Observation and Analysis of Animal and Insect Behavior (VAIB), in conjunction with the 21st International Conference on Pattern Recognition, 2012. (Oral Presentation)
[IC04]	S. Palazzo, C. Spampinato, <b>C. Beyan</b> , "Event Detection in Underwater Domain by Exploiting Fish Trajectory Clustering", In Proceedings of the 1st ACM international workshop on Multimedia analysis for ecological data (MAED), in conjunction with ACM Multimedia (ACMMM), pp. 31-36, 2012. doi: 10.1145/2390832.2390840 ( <i>Oral Presentation</i> )

[IC03]	<b>C. Beyan</b> , A. Temizel, "Mean-Shift Tracking for Surveillance Applications Using Thermal Infrared and Visible Band Data Fusion", In Proceedings of SPIE Vol. 8020, 802010, Defense, Security and Sensing: Airborne Intelligence, Surveillance, Reconnaissance (ISR) Systems and Applications VIII, pp. 1-13, 2011. doi: 10.1117/12.882838
[IC02]	H. Ogul, <b>C. Beyan</b> , O. Eren, K. Yildiz, T. Ercelebi, B. Sonmez, "MicroRNA target recognition from compositional features of aligned microRNA-mRNA duplexes", In Proceedings of International Symposium on Innovations in Intelligent Systems and Applications (INISTA), 2010. <i>(Oral Presentation)</i>
[IC01]	<b>C. Beyan</b> , H. Ogul, "A fuzzy k-NN approach for cancer diagnosis with microarray gene expression data", In Proceedings of 3rd International Symposium on Health Informatics and Bioinformatics (HIBIT), 2008. (Oral Presentation)

# Peer Reviewed Conference Papers in Turkish (2)

[NC02]	<b>Ç. Beyan</b> , A. Temizel, "Detection of Abandoned Objects Using Thermal and Visible Band Tracking", In Proceedings of 19th IEEE Conference on Signal Processing and Communications Applications (IEEE SIU), pp. 114-117, 2011. doi: 10.1109/SIU.2011.5929600 (ORAL Presentation) (Received Alper Atalay Best Student Paper Award, first place)
[NC01]	<b>Ç. Beyan</b> , A. Temizel, "A Hybrid Multi Object Tracker Using Mean-shift and Background Subtraction", In Proceedings of 19th IEEE Conference on Signal Processing and Communications Applications (IEEE SIU), pp. 110-113, 2011. doi: 10.1109/SIU.2011.5929599

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