FERDA OFLI

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| | Outstanding Reviewer Award, CVPR, Online | 2021 | | |
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| | Best Insight Paper Award, ISCRAM, València, Spain | 2020 | | |
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| | Undergraduate Scholarship, Koç University | 2000 - 2005 | | |
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| | Re-Energize DR3 Consortium (USD 2M total, $667K$ QCRI), Belmont Forum | 2020 - 2023 | | |
| | Recipe Generation, QCRI-MIT-Nestle (USD 150K total, 40K QCRI), Nestle | 2020 | | |
| | Humanitarian Image Analysis, QCRI-MIT (USD 350K), Qatar Foundation (QF) Understanding Health Habits from Social Media Pictures, QCRI-MIT (USD 1M) | $\begin{array}{rrr} 2019 - 2020 \\ \text{, QF} & 2016 - 2019 \end{array}$ | | |
| ACADEMIC | Google Scholar Scopus | | | |
| Footprint | Citations 7433 $4,125$ | | | |
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 - [96] M. E. Sargin, F. Ofli, Y. Yasinnik, O. Aran, A. Karpov, S. Wilson, E. Erzin, Y. Yemez, A. M. Tekalp, "Combined Gesture-Speech Analysis and Synthesis," eNTERFACE, Jul 2005.

Incidents1M: A Dataset for Detecting Natural Disasters, Damage, and Incidents in the Wild

Online: http://incidentsdataset.csail.mit.edu/

The Incidents Dataset consists of 446,684 scene-centric images annotated by humans as positive for natural disasters (class-positives), types of damage or specific events that can require human attention or assistance, like traffic jams or car accidents. The term *incidents* is used to refer to the 43 categories covered by the dataset. The dataset also contains an additional set of 697,464 images annotated by humans as negatives for specific incident categories (class-negatives), which prove useful for training more robust models. The Incidents Dataset is significantly larger, more complete, and much more diverse than any other dataset related to incident detection in scene-centric images.

MEDIC: A Multi-Task Learning Dataset for Disaster Image Classification

Online: https://crisisnlp.qcri.org/medic/

The MEDIC dataset is the largest social media image classification dataset for humanitarian response consisting of 71,198 images to address four different tasks in a multi-task learning setup including disaster type prediction, informativeness classification, humanitarian categorization, and damage severity assessment. This is the first dataset of its kind combining social media images, disaster response, and multi-task learning research. An important property of this dataset is its high potential to facilitate research on multi-task learning, which recently receives much interest from the machine learning community and has shown remarkable results in terms of memory, inference speed, performance, and generalization capability.

TBCOV: Two Billion Multilingual COVID-19 Tweets with Sentiment, Entity, Geo, and Gender Labels

Online: https://crisisnlp.gcri.org/tbcov

The TBCOV dataset comprises more than two billion multilingual tweets related to the COVID-19 pandemic. Specifically, TBCOV offers 2,014,792,896 tweets collected using more than 800 multilingual keywords over a 14-month period from Feb 1st, 2020 till Mar 31st, 2021. These tweets span 67

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languages, posted by 87 million unique users across 218 countries worldwide. Several state-of-the-art machine learning methods were employed to annotate tweets with a number of important latent attributes such as sentiment polarity, named-entities, geolocation, user type, and gender.

GeoCoV19: A Dataset of Hundreds of Millions of Multilingual COVID-19 Tweets with **Location Information**

Online: https://crisisnlp.qcri.org/covid19

GeoCoV19 is a large-scale dataset containing more than 524 million multilingual tweets collected between Feb 1–May 1, 2020. The dataset contains around 378K geotagged tweets and 5.4 million tweets with Place information. We extract toponyms from the user location field and tweet content and resolve them to geolocations such as country, state, and city. This results in 297 million tweets annotated with geolocation based on user location field and 452 million tweets based on tweet content.

CrisisMMD: Multimodal Twitter Datasets from Natural Disasters

Online: http://crisisnlp.qcri.org/crisismmd

Online: https://dataverse.mpi-sws.org/dataverse/icwsm18

The CrisisMMD multimodal Twitter dataset consists of several thousands of manually annotated tweets and images collected during seven major natural disasters including earthquakes, hurricanes, wildfires, and floods that happened in the year 2017 across different parts of the World. As the first and largest multimodal dataset published for research community in the crisis response and management domain, CrisisMMD contains three types of annotations, i.e., informative/not-informative classification, humanitarian categorization, and damage severity assessment.

Recipe1M+: A Dataset for Learning Cross-Modal Embeddings for Cooking Recipes and Food Images

Online: http://pic2recipe.csail.mit.edu/

Recipe1M is a new large-scale, structured corpus of over one million cooking recipes and 13 million food images. As the largest publicly available collection of recipe data, Recipe1M affords the ability to train high-capacity models on aligned, multi-modal data.

Berkeley MHAD: A Comprehensive Multimodal Human Action Database

Online: http://tele-immersion.citris-uc.org/berkeley_mhad/

The Berkeley Multimodal Human Action Database (MHAD) consists of temporally synchronized and geometrically calibrated data from an optical motion capture system, multi- baseline stereo cameras from multiple views, depth sensors, accelerometers and microphones. It contains 11 actions performed by 7 male and 5 female subjects in the range 23-30 years of age except for one elderly subject. All the subjects performed 5 repetitions of each action, yielding about 660 action sequences which correspond to about 82 minutes of total recording time.

An Interactive Exercise Coaching System for the Elderly

Online: http://tele-immersion.citris-uc.org/remote_coaching_of_elderly since 2011 This Kinect-based automated interactive exercise coaching system guides users through a series of video exercises, tracks and measures their movements, provides real-time feedback, and records their performance over time. The system consists of exercises to improve balance, flexibility, strength and endurance, with the aim of reducing fall risk and improving performance of daily activities for the elderly.

MVGL-MASAL: Story Telling Audio-Visual Database

Online: https://mvql.ku.edu.tr/databases/ The MVGL-MASAL is a gesture-speech database. The database includes four recordings of a single subject telling stories in Turkish. Each story is approximately 7 minutes long and the total duration of the database is 27 min and 45 seconds. The audio-visual data is synchronously captured from the stereo camera and sound card. The stereo video includes only upper body gestures with 30 frames per second whereas the audio is recorded with 16 kHz sampling rate and 16 bits per sample.

Hamad Bin Khalifa University, Doha, Qatar Employment

Senior Scientist in the Qatar Computing Research Institute

I am involved in various humanitarian projects ranging from social media image analysis for damage assessment and disaster response to satellite imagery analysis for poverty mapping, internal displacement, and climate adaptation. Stakeholder engagements include United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF), United Nations Economic and Social Commission for West Asia (UN ESCWA), Internal Displacement Monitoring Centre (iDMC),

since 2017

since 2012

since 2005

12/2019 - Present

since 2020

since 2018

07/2004 - 09/2004

European-Mediterranean Seismological Centre (EMSC), British Geological Survey (BGS), Education Above All (EAA), among others.

Hamad Bin Khalifa University, Doha, Qatar

Scientist in the Qatar Computing Research Institute

With several colleagues, I worked on two projects in parallel:

- Crisis Computing: Applying computer vision and machine learning techniques on large collections of social media images as well as aerial (UAV) images captured at disaster-hit locations for automated damage assessment and disaster response.
- Health Informatics: Building an architecture for holistic view of individuals' health using rich data available from online social networks, wearable devices, mobile apps, and electronic health records. Particular emphasis on understanding of food images and recipes collected from online resources and social media platforms.

University of California, Berkeley, Berkeley, CA

Postdoctoral Researcher in the Teleimmersion Lab

With Professor Ruzena Bajcsy, I worked on human activity understanding from multi-sensory data:

- Collected a multimodal human action database (released as "Berkeley MHAD") consisting of temporally synchronized and geometrically calibrated data from an optical motion capture system, multi-view multi-baseline camera arrays, depths sensors, accelerometers and microphones.
- Developed a new representation of human actions called Sequence of the Most Informative Joints (SMIJ) and demonstrated on multiple datasets that the SMIJ representation outperforms several state-of-the-art algorithms in human action recognition.
- Contributed to the design and development of a Microsoft Kinect-based physical exercise system for remote coaching of the elderly population.

Koc University, Istanbul, Turkey

Research

EXPERIENCES

Graduate Research Assistant in the Multimedia, Vision and Graphics Lab

With Professors A. Murat Tekalp, Y[']ucel Yemez and Engin Erzin, I worked on various multimedia signal processing tasks:

- Developed a framework for learning many-to-many statistical mappings from musical primitives (*i.e.*, musical measures) to dance motion primitives (*i.e.*, dance figures) towards generating plausible alternative music-driven dance choreographies via hidden Markov models (HMM).
- Worked on audiovisual facial expression analysis using facial animation parameters (FAP) with active appearance models (AAM) for speech-driven facial expression synthesis and animation.

eNTERFACE'07: The SIMILAR NoE Summer Workshop on Multimodal Interfaces,

Boğaziçi University, Istanbul, Turkey 07/2007 - 08/2007Project Leader and Researcher in "Audio-Driven Human Body Motion Analysis" project Worked on body motion capture and audio-driven human body motion synthesis and animation tasks. Projects results were presented in ICASSP'08 and JMUI'08.

eNTERFACE'06: The SIMILAR NoE Summer Workshop on Multimodal Interfaces,

University of Zagreb, Dubrovnik, Croatia 07/2006 - 08/2006Researcher in "Multimodal Character Morphing" project

Worked on face detection, tracking and extraction of facial key points for analysis and animation of facial mimics on a talking avatar.

The SIMILAR NoE Graduate Twinning Program,

Polytechnic University of Catalonia, Barcelona, Spain

Visiting Researcher in Image Processing Group

Worked on multicamera calibration, data acquisition and body motion analysis under supervision of Professors Ferran Marques and Josep Ramon Casas. Also investigated deinterlacing algorithms on the acquired data to improve the video quality for the body motion analysis task.

eNTERFACE'05: The SIMILAR NoE Summer Workshop on Multimodal Interfaces,

Polytechnic Faculty of Mons, Mons, Belgium 07/2005 - 08/2005Researcher in "Combined Gesture-Speech Analysis" project Developed a graphical tool for upper body animation. Project results were presented in ICME'06.

Summer Camp on Analog and Digital Circuit Design,

STMicroelectronics, Istanbul, Turkey

10/2005 - 08/2010

04/2014 - 11/2019

09/2010 - 04/2014

06/2006 - 07/2006

Developed team projects on analog and digital design of microelectronic circuits, i.e., analog design of an inverter and digital design of an alarm clock. Wrote 160-page long report on this internship.

| Teaching Experiences | Koç Universi Graduate Teac. Taught in prob • Digital Si | ity, Istanbul, Turkey hing Assistant in College of Engineering blem sessions; prepared and graded assignments, quizzes and proj ignal Processing; Spring 10 | 10/2005 – ects of the | - 08/2010 courses: |
|-------------------------|--|---|----------------------------|-----------------------|
| | Signals anDigital In | nd Systems; Fall 06, 07, 08, 09, 10 nage and Video Processing; Spring 07, 08, 09 | | |
| | • Compute | r Graphics; Spring 07 | | |
| | Database Structure | Management Systems; Spring 06 | | |
| | • Structure | and interpretation of Computer 1 rograms, ran 05 | | |
| Invited Talks | [1] AI and Nor 4th Annual Research (N | n-Traditional Data for Social Good. <i>Nepal AI School (ANAIS)</i> , Nepal Applied Mathematics and Info NAAMII), Online, May 2023. | ormatics Ins | stitute for |
| | [2] Integrating GIS Technol | Remote Sensing and Social Sensing for Disaster Response. blogy Day, The Centre for GIS (CGIS), Doha, Qatar, May 2023. | | |
| | [3] Inferring Ro GIS Techno | oads and Counting Cars from Space. blogy Day, The Centre for GIS (CGIS), Doha, Qatar, May 2022. | | |
| | [4] Disaster Im <i>iMMAP 3rc</i> <i>Context</i> , iN | nage Analysis. d Humanitarian Innovation Event – Technologies for Decision-Mal IMAP Colombia, Online, March 2022. (video) | king in Hum | anitarian |
| | [5] AIDR: Arti | ificial Intelligence for Digital Response. | | |
| | Global Sym | posium on Artifical Intelligence in Governance and Disaster Resp | oonse, Speci | al Centre |
| | for Disaster | r Research, Jawaharlal Nehru University, New Delhi, India, Marc | h 2019. | |
| | [6] Crisis Comj Artificial In Nations De | puting at QCRI. <i>itelligence for Social Good Workshop</i> , Qatar Center for Artificial I velopment Programme, Doha, Qatar, February 2019. (video) | Intelligence | & United |
| | [7] Using Comp Artificial In Qatar, Octo | puter Vision to Understand Food and Monitor Agriculture. <i>itelligence and Food Security Workshop</i> , Qatar Center for Artificia ober 2018. | al Intelligen | ce, Doha, |
| | [8] Using Aeria 2nd Worksh ment Plann | al and Social Media Images for Augmenting Official Statistics. hop on Modernization of Official Statistics in the State of Qatar, ning and Statistics, Doha, Qatar, September 2018. | Ministry of | Develop- |
| | [9] Artificial In Workshop of Research In | ntelligence for Digital Response – Automatic Image Processing. on Using Aerial and Social Media Images for Humanitarian Ai- nstitute, Doha, Qatar, June 2018. | d, Qatar Co | omputing |
| | [10] Using Aeria Experts Me bridge, MA | al and Social Media Images for Humanitarian Aid. eeting: Aerial AI and Big Data, swissnex Boston & WeRobotics , USA, May 2018. | & MIT Sol | ve, Cam- |
| | [11] Understand Graduate S | ling Health Habits from Social Media Pictures. Seminar, Hamad Bin Khalifa University, Doha, Qatar, November | 2017. | |
| | [12] Real-time I Invited Tal Qatar, Mar | mage Processing on Social Media during Crisis Events. k, The Fourth Machine Learning and Data Analytics (MLDAS) ch 2017. |) Symposiu: | m, Doha, |
| | [13] Design and Invited Tall March 2015 | Evaluation of an Interactive Exercise Coaching System for the E k, Geriatric Conference of Middle East Academy for Medicine of A 5. | Elderly. Ageing, Doh | ıa, Qatar, |
| | [14] Human Mo Seminar, V | tion Analysis in the Interplay of Multimodality, Representation a iterbi School of Engineering, USC, Los Angeles, CA, USA, April | and Learnin 2013. | g. |
| | [15] Human Mo Seminar, So | tion Analysis in the Interplay of Multimodality, Representation a ony Computer Entertainment America, Foster City, CA, USA, M | and Learnin Iarch 2013. | g. |
| | [16] Multimodal Berkeley In | l Analysis of Dance Performances for Music-Driven Choreograph estitute of Design Seminar, UC Berkeley, Berkeley, CA, USA, Ap | y Synthesis. ril 2012. | |

| [17] | A Multimodal System for Human Movement Acquisition. | |
|------|--|----|
| | Graphics/Vision Lunch Seminar, UC Berkeley, Berkeley, CA, USA, October 201 | 1. |

- [18] Music/Figure Correlation Analysis Towards Music-Driven Dance Choreography Synthesis. COST2102 International School on Development of Multimodal Interfaces: Active Listening and Synchrony, Trinity College, Dublin, Ireland, March 2009.
- [19] Prosody-Driven Head Gesture Analysis and Synthesis. COST2102 International Workshop on Verbal and Non-verbal Communication Behaviors, The Second University of Naples, Vietri sul Mare, Italy, March 2007.
- [20] Estimation and Analysis of Facial Animation Parameter Patterns. COST2102 International Workshop on Verbal and Non-verbal Communication Behaviors, The Second University of Naples, Vietri sul Mare, Italy, March 2007.
- [21] Multicamera Motion Capture for Articulated Body Model Animation. The SIMILAR NoE Industry Day, Brussels, Belgium, December 2006.
- [22] Prosody-Driven Head Gesture Synthesis. The SIMILAR NoE Industry Day, Brussels, Belgium, December 2006.

SKILLS Programming Languages: C/C++, Java, Fortran, Python, Lisp, Scheme, Perl, VHDL.
 Libraries: PyTorch, Tensorflow, OpenCV, OpenGL, GSL, Open Inventor, Coin3D, HTK, Latex.
 Tools: MS Visual Studio, MATLAB, Eclipse, MySQL, PhaseSpace Impulse Motion Capture System, IO Industries Streams, Microsoft Kinect, Autodesk MotionBuilder, Adobe Premiere, XFace.
 Operating Systems: MS Windows, Unix/Linux, Mac OS.

Professional Activities Member: IEEE S'07-M'11-SM'18, ACM M'10-SM'18, AAAI M'21.

PC/SPC/AC/TC/Organizer/Editor:

- (AC) International Conference on Image Processing, ICIP 2024
- (SPC) AAAI Conference on Artificial Intelligence, AAAI 2024
- (TC) EarthVision: Workshop on Large-Scale Computer Vision for Remote Sensing Imagery, CVPR 2024
- (AC) International Conference on Image Processing, ICIP 2023
- (SPC) AAAI Conference on Artificial Intelligence, AAAI 2023
- (Editor) Book Section on Emerging Technologies and Innovative Applications of AI in DRR, International Handbook on Disaster Research (Springer Nature) 2023
- (AC) International Conference on Image Processing, ICIP 2022
- (SPC) AAAI Conference on Artificial Intelligence, AAAI 2022
- (TC) EarthVision: Workshop on Large-Scale Computer Vision for Remote Sensing Imagery, CVPR 2022
- (Organizer) FG4COVID19: The International Workshop on Face and Gesture Analysis for COVID-19, FG 2021
- (AC) International Conference on Image Processing, ICIP 2021
- (TC) EarthVision: Workshop on Large-Scale Computer Vision for Remote Sensing Imagery, CVPR 2021
- (PC) DECOR: Third International Workshop on Data Engineering Meets Intelligent Food and Cooking Recipes, ICDE 2021
- (Editor) Special Issue on Using AI and Social Media for Disaster Response and Management, Elsevier Journal on Information Processing & Management (IPM) 2020
- (AC) International Conference on Image Processing, ICIP 2020
- (TC) EarthVision: Workshop on Large-Scale Computer Vision for Remote Sensing Imagery, CVPR 2020
- (PC) DECOR: Third International Workshop on Data Engineering Meets Intelligent Food and Cooking Recipes, ICDE 2020
- (PC) Health on the Web Track, WWW 2020
- (TC) CVGC: Computer Vision for Global Challenges Workshop, CVPR 2019
- (TC) EarthVision: Workshop on Large-Scale Computer Vision for Remote Sensing Imagery, CVPR 2019
- (PC) DECOR: Second International Workshop on Data Engineering Meets Intelligent Food and Cooking Recipes, ICDE 2019

- (PC) DeepGlobe: A Challenge for Parsing the Earth through Satellite Images, CVPR 2018
- (TC) EarthVision: Workshop on Large-Scale Computer Vision for Remote Sensing Imagery, CVPR 2017

Reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence; IEEE Transactions on Image Processing; IEEE Transactions on Multimedia; IEEE Transactions on Visualization and Computer Graphics; IEEE Transactions on Audio, Speech, and Language Processing; IEEE Transactions on Circuits and Systems for Video Technology; IEEE Transactions on Human-Machine Systems; IEEE Multimedia; IEEE Intelligent Systems; IEEE Journal of Biomedical and Health Informatics; IEEE Transactions on Emerging Topics in Computing; IEEE Transactions on Image Processing; IEEE Transactions on Affective Computing; IEEE Access; Computer Vision and Image Understanding (Elsevier); Journal of Visual Communication and Image Representation (Elsevier); Pattern Recognition (Elsevier); Image and Vision Computing (Elsevier); Signal Processing: Image Communication (Elsevier); Computer Methods and Programs in Biomedicine (Elsevier); Information Processing and Management (Elsevier); International Journal of Disaster Risk Reduction (Elsevier); ISPRS Journal of Photogrammetry and Remote Sensing (Elsevier); Machine Vision and Applications (Springer); The Visual Computer (Springer); Signal, Image and Video Processing (Springer); Natural Hazards (Springer); EPJ Data Science (Springer); IET Computer Vision; Journal of Electronic Imaging (SPIE); Disaster Medicine and Public Health Preparedness (Cambridge); ACM Transactions on the Web;
- IEEE/CVF Conference on Computer Vision and Pattern Recognition; International Conference on Computer Vision; European Conference on Computer Vision; Neural Information Processing Systems; IEEE Winter Conference on Applications of Computer Vision; AAAI Conference on Artificial Intelligence; The Web Conference; International Conference on Information Systems for Crisis Response and Management; International Symposium on Computer and Information Sciences; Affective Computing and Intelligent Interaction; Image, Video, Multidimensional Signal Processing; International Conference on Computing, Networking and Communications; International Conference on Medical Image Computing and Computer Assisted Intervention; IEEE Signal Processing and Communications Applications Conference.

ADVISING & **Postdoc (Official):** Marie-Christine Rufener (2022-2023), Rizwan Sadiq (2021-2023), Firoj Alam (2018-2019), Youssef Tamaazousti (2018-2019)

Postdoc (External): Dim Papadopoulos (2018-2021), Javier Marin (2017-2018), Yusuf Aytar (2015-2017)

PhD (Official): Aisha Al-Mohannadi (*Qatari*, 2023-present), Sara Al-Emadi (*Qatari*, 2022-present), Noora Al-Emadi (*Qatari*, 2021-present)

MS (Official): Fatma AlNaimi (*Qatari*, 2020-2022)

MS (External): Ethan Weber (2019-2021), Alperen Kantarci (2020-2021), Seymanur Akti (2020-2021), Nadiia Chepurko (2020), Aritro Biswas (2017-2019), Nuria Marzo Grimalt (2017-2019)

RA: Mahima Aggarwal (2024-present), Keivin Isufaj (2023-present), Abdul Wahab Ziaullah (2023-2024), Masoomali Fatehkia (2022-2023), Aya Elsaqa (2022-2023), Zainab Akhtar (2021-2023), Umair Qazi (2019-2023), Raggi al Hammouri (2016-2020), Enes Kocabey (2017), Firoj Alam (2016-2018), Dat Tien Nguyen (2016-2017), Aarti Sathyanarayana (2016-2017), Nazia Attari (2015-2017), Nicolas Rey (2015)

Interns: Andrew Yang (2023), Maryam Khalid (2022), Sumaya Abdul Rahman (2022), Abhigyan Kishor (2022), William Lugoloobi (2022), Mesha Patel (2021), Muhammad Uzair Umar (2021), Abiram Gangavaram (2021), Shankar Kumar (2020), Maria Macoridis (2020), Mohamed Ahmed Saqib (2020), Achira Battacharyya (2020), Benjamin Coles (2019), Hussein Aly (2019), Safin Hossain (2019), Adhithya Arun (2018, 2019), Abbas Ahmed (2018, 2019), Manan Gandhi (2018), Barath Kumar Thulasidoss (2018), Zainab Akhtar (2018), Sabarish Sainathan (2018), Nandhini Subramanian (2017), Meghana Yechuri (2017), Vedkumar Patel (2017), Maimoon Siddiqui (2017), Shaden Shaar (2016), Amer Ahmed (2016), Deeksha Singh (2016), Abdullah Khan (2016), Latifa Al Thani (*Qatari*, 2015), Maryam Al Naemi (*Qatari*, 2015), Jacob Sunny (2015), Olympia Datta (2015), Harsh Sharma (2015), Juan Sam (2015), Alaa Khader (2015), Ashwini Kamath (2015), Mohammad Yaqoob (2015), Dhruv Relwani (2015)

REFERENCES Available upon request.