Mohammadreza **Zolfaghari**

PhD Candidate - Computer Science | Computer Vision/Deep Learning

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EDUCATION

2016 – 2020	Ph.D. in Computer Science Title: Time Independence in Video Understanding.	University of Freiburg, Germany
	Topics: Video-Language Understanding, Adversarial Networks, Uncertainty Estimation, Multi-stream networks, Future Prediction, Efficient CNN. Supervisor: Prof. Thomas Brox	
2010 – 2013	M.Sc. in Computer Engineering (Artificial Intelligence) Title: Human Pose Estimation Using Sparse Representation. Supervisor: Dr. Mohammad Taghi Manzuri Shalmani Grade: GPA: 18.47/20 (4/4)	Sharif University of Technology, Iran
2005 – 2010	B.Sc. in Computer Engineering Supervisor: Dr. Reza Berangi	IUST, Iran



RESEARCH INTERESTS



■ Video Understanding



Future Anticipation

Human Pose Estimation



Computer Vision **Deep Learning**

Programming Frameworks SoftSkills

Python, C#, C++, Java, Web (PHP, JS,...)

PyTorch, Caffe, Tensorflow, Git, Docker Teamwork, Multi-tasking, Responsibility



IMPORTANT PUBLICATIONS

Book Chapters

> M. Zolfaghari, Z. Amiri, "Artificial Intelligence", ModaresanSharif Publication, Tehran, Iran. To prepare students for Nationwide M.Sc. entrance exam in Computer Engineering-Artificial Intelligence (+300 pages), 2018.

Papers

- 1. Yi Zhu, Xinyu Li, Chunhui Liu, Mohammadreza Zolfaghari, Yuanjun Xiong, Chongruo Wu, Zhi Zhang, Joseph Tighe, R. Manmatha, Mu Li, "A Comprehensive Study of Deep Video Action Recognition", arXiv 11 Dec 2020.
- 2. M. Zolfaghari*, Andrés Muñoz Garza*, Max J. Argus, T. Brox, "Temporal Shift GAN for Large Scale Video Generation", WACV 2021. * Denotes equal contributions.
- 3. M. Zolfaghari*, Simon Ging*, Hamed Pirsiavash, T. Brox, "COOT: Cooperative Hierarchical Transformer for Video-Text Representation Learning", NeurIPS 2020. * Denotes equal contributions.
- 4. M. Zolfaghari, Özgün Çiçek, Syed Mohsin Ali, María Alejandra Bravo, Farzaneh Mahdisoltani, Can Zhang, and Thomas Brox, "Multimodality- and Uncertainty-Aware Long-Term Future Captioning in Videos", Submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2020.
- 5. M. Zolfaghari, K. Singh, T. Brox, "ECO: Efficient Convolutional Network for Online Video Understanding", European Conference on Computer Vision (ECCV) 2018.
- 6. M. Zolfaghari, GL. Oliveira, N. Sedaghat, T. Brox, "Chained Multi-stream Networks Exploiting Pose, Motion, and Appearance for Action Classification and Detection", IEEE International Conference on Computer Vision (ICCV), 2017.
- 7. N. Sedaghat, M. Zolfaghari, E. Amiri, T. Brox, "Orientation-boosted voxel nets for 3D object recognition", British Machine Vision Conference (BMVC), 2017.

Technical Report

> M. Zolfaghari, "Graph Based Semi-supervised Learning Methods", DML Lab, Sharif University of Technology, Tehran, Iran 2010

Full list of publications: S Google Scholar

■ WORK EXPERIENCE (SELECTED)

July 2020–March Internship Amazon, Tubingen

2021 Video-Text representation learning

Jan 2016–Present Research Scientist Freiburg, Germany

Focused on video understanding problem and supervised several video understanding projects in the

Prof. Thomas Brox's computer vision lab.

July 2015–Dec 2015 Internship Freiburg, Germany

Object Recognition and Video Understanding

2014 Research and Development DarViz, Tehran

Developing prototypes for intelligent services.(e.g. Recommender systems, Face recognition, Image seg-

mentation)

2009 – 2019 Teaching Assistant University of Freiburg, IUST and Sharif

Teaching Assistant of several courses including Statistical Pattern Recognition, Neural Networks and

Fuzzy Systems, Digital Signal Processing, and Deep Learning.

SUPERVISED THESES (M.Sc.) ■ Supervised Theses (M.Sc.)

October 2019 | Multi-modal Representation Learning for Video-Language Tasks, SIMON GING, NeurIPS20

March 2020 > Video-Language learning

> Experiments on ActivityNet, HowTo100M, and Epic-Kitchens datasets

PyTorch | Bert | Captioning | Attention | Multi-modal

November 2019 | Analyzing, evaluating and optimizing a motion capture process in industrial assembly, Jatin Dhawan, Daimler, Finished

July 2020 > Human pose estimation and video understanding

PyTorch AlphaPose Posture evaluation HealthCare

February 2019 | Large Scale Video Generation Using GANs, Andres Munoz Garza, WACV21

November 2019 > Temporal consistency in 2D image generators

> Introducing a new measure to evaluate quality of generated videos

PyTorch GANs Video generation IS S3

September 2018 | Learning Video Representations for Deep Reinforcement Learning based Movie Recommender

Systems, Salih Hasan Siddiqi,

May 2019 Actor-Critic reinforcement learning to model interactions between users and movies.

DRL Deterministic policy gradients MovieLens

October 2017 | Future Forecasting On Deep Representation In Videos, KAMALJEET SINGH, ECCV 2018

July 2018

> Efficient design for online video understanding

2D-3D CNN Online video classification video captioning

Two more supervised theses on utilizing deep learning methods for interdisciplinary problems (Droplet-2019 and Hive-2020).

P Awards and Honors

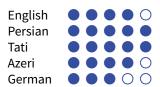
- 3^{rd} Rank in nationwide M.Sc. entrance exam in Computer Engineering-Hardware Engineering among more than 20,000 participants, Iran
- 2010 Awarded as Outstanding student at the Iran University of Science and Technology, Tehran
- 2010 8th Rank in 15th National Collegiate Scientific Olympiad in Computer Engineering, Iran
- 2005 Top 0.1% in national entrance exam of Iranian Universities among more than 500,000 participants, Iran
- 2003 3^{rd} Rank in the National Physics Laboratory Competition, Iran

Q REVIEW DUTIES

Journals Conferences

- TPAMI, IJCV, Pattern Recognition.
- CVPR'17, ICCV'17, CVPR'19, ICCV'19, CVPR'20, ECCV'20, NeurIPS'20, WACV'21, CVPR'21.

LANGUAGES



+ Hobbies

- > Reading
- > Movies
- > Hiking
- > Bouldering