Mohammadreza ZOLFAGHARI

PhD Candidate - Computer Science | Computer Vision/Deep Learning

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 01 November 1985

EDUCATION

2016 – 2020	**Ph.D. in Computer Science**	University of Freiburg, Germany

Title: Time Independence in Video Understanding.
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)**	Sharif University of Technology, Iran

Title: Human Pose Estimation Using Sparse Representation.
Supervisor: Dr. Mohammad Taghi Manzuri Shalmani
Grade: GPA: 18.47/20 (4/4)

2005 – 2010	**B.Sc. in Computer Engineering**	IUST, Iran

Supervisor: Dr. Reza Berangi

RESEARCH INTERESTS

- Video-Language
- Video Understanding
- Video Generation
- Future Anticipation
- Human Pose Estimation

SKILLS

Computer Vision	● ● ● ● ○
Deep Learning	● ● ● ● ●
Programming	Python, C#, C++, Java, Web (PHP, JS,...)
Frameworks	PyTorch, Caffe, Tensorflow, Git, Docker
SoftSkills	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: 🌐 Google Scholar

🖥 WORK EXPERIENCE (SELECTED)

July 2020–March 2021	**Internship** Video-Text representation learning	Amazon, Tubingen
Jan 2016–Present	**Research Scientist** Focused on video understanding problem and supervised several video understanding projects in the Prof. Thomas Brox's computer vision lab.	Freiburg, Germany
July 2015–Dec 2015	**Internship** Object Recognition and Video Understanding	Freiburg, Germany
2014	**Research and Development** Developing prototypes for intelligent services.(e.g. Recommender systems, Face recognition, Image segmentation)	DarViz, Tehran
2009 – 2019	**Teaching Assistant** Teaching Assistant of several courses including Statistical Pattern Recognition, Neural Networks and Fuzzy Systems, Digital Signal Processing, and Deep Learning.	University of Freiburg, IUST and Sharif

🏔 SUPERVISED THESES (M.SC.)

October 2019 March 2020	**Multi-modal Representation Learning for Video-Language Tasks , SIMON GING, NeurIPS20** > Video-Language learning > Experiments on ActivityNet, HowTo100M, and Epic-Kitchens datasets PyTorch Bert Captioning Attention Multi-modal
November 2019 July 2020	**Analyzing, evaluating and optimizing a motion capture process in industrial assembly, JATIN DHAWAN, DAIMLER, Finished** > Human pose estimation and video understanding PyTorch AlphaPose Posture evaluation HealthCare
February 2019 November 2019	**Large Scale Video Generation Using GANs, ANDRES MUNOZ GARZA, WACV21** > Temporal consistency in 2D image generators > Introducing a new measure to evaluate quality of generated videos PyTorch GANs Video generation IS S3
September 2018 May 2019	**Learning Video Representations for Deep Reinforcement Learning based Movie Recommender Systems, SALIH HASAN SIDDIQI,** > Actor-Critic reinforcement learning to model interactions between users and movies. DRL Deterministic policy gradients MovieLens
October 2017 July 2018	**Future Forecasting On Deep Representation In Videos, KAMALJEET SINGH, ECCV 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).

🏆 AWARDS AND HONORS

2010	3rd **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	3rd **Rank** in the National Physics Laboratory Competition, Iran

Q REVIEW DUTIES

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

⊕ LANGUAGES

English	●●●●○
Persian	●●●●●
Tati	●●●●●
Azeri	●●●●○
German	●●●○○

✚ HOBBIES

> Reading
> Movies
> Hiking
> Bouldering