Milad Abdollahzadeh

Postdoctoral Research Fellow

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🎓 Education

2013-2018	**Ph.D., Electrical Engineering, University of Tabriz** Thesis: "Video Communication Over Wireless Multimedia Sensor Networks" Supervisor: Prof. Hadi Seyedarabi
2011-2013	**M.Sc., Electrical Engineering, University of Tabriz** Thesis: "Multi-focus Image Fusion Using Statistical Analysis" Supervisor: Prof. Hadi Seyedarabi
2007-2011	**B.Sc. Electrical Engineering, University of Tabriz** Final dissertation: "Automatic Vehicle Recognition" Supervisor: Prof. Hadi Seyedarabi

💼 Research Experience

09/11-04/20 — **Research Assistant to Prof. Hadi Seyedarabi, Digital Image Processing and Computer Vision Laboratory, University of Tabriz.**

Selected Research Topics:
- Video Compression and Communication Under Energy Constraints
- Low Complexity Scheme for Multi-Focus Image Fusion for Visual Sensor Networks
- License Plate Recognition Using Compact Deep Neural Networks

11/16-11/17 — **Research Assistant to Prof. Ngai-Man Cheung, Singapore University of Technology and Design (SUTD).**

Research Topics:
- Aircraft Fuselage Defect Detection using Deep Neural Networks
- Fine-Grained Wound Tissue Analysis Using Deep Neural Network
- Video Interpolation Using Deep Convolutional Neural Network for Cloud Gaming

03/19-11/19 — **ML Researcher, AI-Bridge Company, Stuttgart.**

Projects:
- Learn to Train: Deep Regional Pose Estimation for Training a Dancer
- Popularity Prediction and Increment in Social Media Using Deep Neural Networks

01/18-11/20 — **ML Researcher/Consultant, Tabriz University of Medical Sciences.**

Research Topics:
- Artifact Reduction in CBCT Dental Images
- Learning a Deep Neural Network for simultaneous CBCT Dental Image Super-Resolution and Denoising
- Mandibular Canal Detection in CBCT Dental Images

11/20-now   **Postdoc Researcher Fellow**

Singapore University of Technology and Design (SUTD).

Research Topics:

- Meta-Learning for Few-shot learning
- Fairness in Generative Models
- Few-Shot Image Generation
- Training Generative Models with Limited Data

Research Interests

- Generative Models
- AI for Healthcare
- Fairness in Machine Learning
- General Artificial Intelligence

Research Papers

2013

- **M. Abdollahzadeh**, F. Shamsafar, and H. Seyedarabi, "Improving the Privacy of a Blind DCT-Based Watermarking Technique Using Visual Cryptography," The 9th International Conference of Information Security & Cryptology (ISC), 2013.

2014

- S. R. Alvar, **M. Abdollahzadeh**, and H. Seyedarabi, "A novel fast search motion estimation algorithm in video coding," in Industrial Electronics (ISIE), 2014 IEEE 23rd International Symposium on, 2014, pp. 934-937.

2015

- A. J. Alvandi, H. Alizadeh Ghazijahani, and **M. Abdollahzadeh**, "License plate recognition using neural networks based on contour map", 14th International Conference on Traffic and Transportation Engineering, 2015. (Farsi)

2016

- **M. Abdollahzadeh**, T. Malekzadeh, and H. Seyedarabi, "Multi-focus Image Fusion for Visual Sensor Networks" presented at the 24th Iranian Conference on Electrical Engineering 2016.
- **M. Abdollahzadeh**, H. Alizadeh Ghazijahani, and H. Seyedarabi, "Quality Aware HEVC Video Transmission Over Wireless Visual Sensor Networks," presented at the 24th Iranian Conference on Electrical Engineering 2016.
- H. Alizadeh Ghazijahani, **M. Abdollahzadeh**, H. Seyedarabi, and J. Musevi Niya, "Adaptive CSK Modulation Guaranteeing HEVC Video Quality Over Visible Light Communication Network" International Symposium on Telecommunication (IST) 2016.
- H. Alizadeh Ghazijahani, **M. Abdollahzadeh**, H. Seyedarabi, and J. Musevi Niya, " On Error and Bitrate Tradeoff in Visible Light Communication System to ensure HEVC Video Quality" International Journal of Information & Communication Technology Research, vol. 8, 19-27.

2017

- T. Malekzadeh, **M. Abdollahzadeh**, H. Nejati, and N.-M. Cheung, "Aircraft Fuselage Defect Detection Using Deep Neural Networks", GlobalSIP 2017. The fifth IEEE Global Conference on Signal and Information Processing.

2018

- M. Johari, **M. Abdollahzadeh**, F. Esmaeili, and V. Sakhamanehs, "Metal Artifact Suppression in Dental CBCT Images Using Image Processing Techniques", Revised, Journal of Medical Signals and Sensors vol. 8 (1), 2018.

- H. Nejati, M.A. Ghazijahani, **M. Abdollahzadeh**, T. Malekzadeh, N.-M. Cheung, K. H. Lee, and L. L. Low "Fine-grained Wound Tissue Analysis Using Deep Neural Network", ICASSP 2018. IEEE International Conference on Acoustics, Speech, and Signal Processing.
- **M. Abdollahzadeh**, H. Seyedarabi, J. Musevi Niya, and N.-M. Cheung, "Optimal HEVC Encoder Configuration for Energy Constraint Wireless Environments" IEEE Access, vol. 6, pp. 72479-72493, 2018.

2020

- H. Nasrollahi, K. Farajzadeh, V. Hosseini, E. Zarezadeh, **M. Abdollahzadeh** "Deep artifact-free residual network for single-image super-resolution", Signal, Image, and Video Processing 14, 407–415 (2020).

2021

- M. Abdollahzadeh, T. Malekzadeh, N.-M. Cheung, "Revisit Multimodal Meta-Learning through the Lens of Multi-Task Learning", NeurIPS 2021, Advances in Neural Information Processing Systems 35. (h5-index:278)

2022

- Y. Zhao*, K. Chandrasegaran*, **M. Abdollahzadeh***, N.-M. Cheung, "Few-shot Image Generation via Adaptation-Aware Kernel Modulation", NeurIPS 2022, Advances in Neural Information Processing Systems 36. (*Equal Contribution; h5-index:278)
- N.-B. Nguyen, K. Chandrasegaran, **M. Abdollahzadeh**, L. Duan, and N.-M. Cheung, "Model Inversion Attacks: Pitfalls and Remedies", Responsible Computer Vision Workshop, ECCV 2023.

2023

- C. TH Teo*, **M. Abdollahzadeh***, N.-M. Cheung, "Fair Generative Models via Transfer Learning", AAAI 2023, AAAI Conference on Artificial Intelligence 37. (*Equal Contribution; h5-index:180)

👤 Invited Talks

- Title: "**Meta-Learning in Deep Neural Networks**", Dec 2021, University of Tabriz. [slides].
- Title: "**Fairness frontiers in Machine Learning**", planned for March 2023, Sahand University of Technology.

📝 Book

- **Milad Abdollahzadeh**, Mohammad Asadpour, "Digital Image Encryption: Concepts and Algorithms" Atharaan Publication, 2018. (Farsi)

📜 Patents

- Arash Joudi Alvandi, Hamed Alizadeh Ghazijahani, **Milad Abdollahzadeh** "Implementation of License Plate Recognition Based on Contour Map", Iranian Patent & Trademark office, No. 87941. (Farsi)
- Touba Malekzadeh, **Milad Abdollahzadeh**, Hossein Nejati, Ngai-Man Cheung "Aircraft Fuselage Defect Detection Using Deep Convolutional Neural Networks" US Patents. (In Progress)

🖥 Teaching Experience

2014-2019	**University of Tabriz**
	Course: "Introduction to Electrical Engineering"

2014-2020	**Tabriz Vocational University**
	Courses: "Signals and Systems"
	"Theory of Electromagnetics"
	"Programming with MATLAB"
	"Deep Learning for AI and Computer Vision"

2015-2016	**IEEE Iran Section, Tabriz Student Branch**
	Course: "Digital Image Processing"

2015-2016	**University of Bonab**
	Courses: "Signals and Systems"
	"Electrical Circuits Analysis"
	"Electrical Circuits Lab"

2012-2014	**University of Tabriz**
	Teaching assistant for:
	"Signals and Systems"
	"C Programming" Courses

🏅 Awards and Honors

- Ranked 816th among 500000 examinees (top 1 percent) in the Iranian nationwide entrance exam of universities for undergraduate studies (2007)
- Ranked 2nd among top graduate students (MSc, 2013)
- Ranked 72nd among 6000 examinees in the Iranian nationwide university exam for PhD (2013)
- Ministry of Science, Research and Technology Scholarship to pursue PhD (2013)
- Accepted as the Member of the Exceptional Talented Student Organization (2016)
- Best Paper Award, 8th International Symposium on Telecommunications, IST (2018)
- Ranked 2nd among top graduate students (PhD, 2018)

📑 Services

Editor for International Journals

- Special Issue on "Detection and Monitoring of Diabetic Retinopathy using Deep Learning", Biomedical Signal Processing, Frontiers in Signal Processing.

Reviewer for International Conferences

- The IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)
- International Conference on Learning Representation (ICLR)
- Neural Information Processing Systems (NeurIPS)
- IEEE International Conference on Image Processing (ICIP)
- IEEE International Conference on Multimedia and Expo (ICME)
- Iranian Conference on Electrical Engineering (ICEE)

Reviewer for International Journals

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Multimedia
- IEEE Access
- Journal of Visual Communication and Image Representation
- IET Image Processing.
- IET Signal Processing.
- IET Electronic Letters.
- Signal Processing: Image Communication.

🖥 Software Skills

Programming Languages
- Python (Excellent)
- C, C++ (Excellent)
- MATLAB (Excellent)

Deep Learning Frameworks
- Tensorflow (Excellent)
- PyTorch (Excellent)
- Caffe (Fair)
- MatConvNet (Fair)

Libraries
- NumPy (Excellent)
- Pandas (Excellent)
- Scikit-Learn (Good)
- OpenCV (Good)

👤 Administrative and Management Background

| 2013-2015 | Vice-Chairman of IEEE Student Section |
| | University of Tabriz |

🪪 Professional Membership

- Institute of Electrical and Electronic Engineering (IEEE)
- Computer Science Teachers Association

References

Prof. Ngai-Man Cheung
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Singapore University of Technology and Design (SUTD)
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Prof. Hadi Seyedarabi
Faculty of Electrical and Computer Engineering
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