

Mostafa SADEGHI

Researcher (Inria Starting Faculty Position),
MULTISPEECH team,
Inria Nancy - Grand Est

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EDUCATION **Sharif University of Technology**, Tehran, Iran

Ph.D., Electrical Engineering, Sept 2013 – April 2018

- Thesis topic: *Sparse Recovery and Dictionary Learning based on Proximal Methods in Optimization*
- Advisor: Prof. Massoud Babaie-Zadeh
- GPA: 18.37/20

M.Sc., Electrical Engineering, Sept 2010 – Sept 2012

- Thesis topic: *Sparse Representation and its Application in Image Denoising*
- Advisor: Prof. Massoud Babaie-Zadeh
- GPA: 17.43/20

Ferdowsi University of Mashhad, Mashhad, Iran

B.Sc., Electrical Engineering, Sept 2006 – Sept 2010

- GPA: 18.41/20

RESEARCH INTERESTS Statistical signal and image processing, latent variable generative models: variational autoencoders (VAEs), unsupervised audio-visual speech enhancement, Bayesian inference and probabilistic machine learning, local/global optimization

RESEARCH EXPERIENCES

- **Postdoctoral researcher** (August 2018–October 2020), PERCEPTION team, Inria Grenoble Rhône-Alpes, France.
- **Research engineer** (September 2017–December 2017), Automatic Control Department, Royal Institute of Technology (KTH), Stockholm, Sweden.
- **Visiting Ph.D. scholar** (October 2016–July 2017), Information Science and Engineering Department, Royal Institute of Technology (KTH), Stockholm, Sweden.

REFEREED JOURNAL PUBLICATIONS

[Google Scholar profile](#)

1. S. Amini, M. Soltanian, **M. Sadeghi**, S. Ghaemmaghami, “Non-Smooth Regularization: Improvement to Learning Framework Through Extrapolation,” *IEEE Transactions on Signal Processing*, vol. 70, pp. 1213–1223, February 2022.
2. **M. Sadeghi** and X. Alameda-Pineda, “Mixture of Inference Networks for VAE-based Audio-visual Speech Enhancement,” *IEEE Transactions on Signal Processing*, vol. 69, pp. 1899–1909, March 2021.

3. **M. Sadeghi**, S. Leglaive, X. Alameda-Pineda, L. Girin, and R. Horaud, "Audio-visual speech enhancement using conditional variational auto-encoders," *IEEE Transactions on Audio, Speech, and Language Processing*, vol. 28, pp. 1788-1800, May 2020.
4. **M. Sadeghi** and M. Babaie-Zadeh, "Dictionary learning with low mutual coherence constraint," *Neurocomputing*, May 2020 (accepted for publication).
5. F. Ghayem, **M. Sadeghi**, M. Babaie-Zadeh, S. Chatterjee, M. Skoglund, and C. Jutten, "Sparse signal recovery using iterative proximal projection," *IEEE Transactions on Signal Processing*, vol. 66, no. 4, pp. 879-894, February 2018.
6. **M. Sadeghi**, and M. Babaie-Zadeh, "Incoherent unit-norm frame design via an alternating minimization penalty method," *IEEE Signal Processing Letters*, vol. 24, no. 1, pp. 32-36, January 2017.
7. **M. Sadeghi**, and M. Babaie-Zadeh, "Iterative sparsification-projection: Fast and robust sparse signal approximation," *IEEE Transactions on Signal Processing*, vol. 64, no. 21, pp. 5536-5548, November 2016.
8. M. Joneidi, P. Ahmadi, **M. Sadeghi**, N. Rahnavard, "Union of low-rank subspaces detector," *IET Signal Processing*, vol. 10, no. 1, pp. 55-62, February 2016.
9. **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, "Learning over-complete dictionaries based on atom-by-atom updating," *IEEE Transactions on Signal Processing*, vol. 62, no. 4, pp. 883-891, February 2014.
10. **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, "Dictionary learning for sparse representation: A novel approach," *IEEE Signal Processing Letters*, vol. 20, no. 12, pp. 1195-1198, December 2013 (**Nominated for IEEE SPL best paper award, 2017**).

PREPRINTS

1. **M. Sadeghi** and P. Magron, "A Sparsity-promoting Dictionary Model for Variational Autoencoders," April 2022.
2. Z. Kang, **M. Sadeghi**, R. Horaud, J. Donley, A. Kumar, and X. Alameda-Pineda, "Expression-preserving face frontalization improves visually assisted speech processing," April 2022.
3. Z. Kang, **M. Sadeghi**, and R. Horaud, "Face Frontalization Based on Robustly Fitting a Deformable Shape Model to 3D Landmarks," October 2020.
4. **M. Sadeghi**, S. Guy, A. Raison, X. Alameda-Pineda, and R. Horaud, "Unsupervised Performance Analysis of 3D Face Alignment," April 2020.
5. S. Chatterjee, A. M. Javid, **M. Sadeghi**, S. Kikuta, P. P. Mitra, M. Skoglund, "SSFN: Self Size-estimating Feed-forward Network and Low Complexity Design," March 2020.

CONFERENCE PUBLICATIONS

1. Z. Kang, **M. Sadeghi**, R. Horaud, J. Donley, A. Kumar, and X. Alameda-Pineda, "The impact of removing head movements on audio-visual speech enhancement," in *IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)*, May 2022.
2. V.-N. Nguyen, **M. Sadeghi**, E. Ricci, and X. Alameda-Pineda, "Deep variational generative models for audio-visual speech separation," in *IEEE 31st International Workshop on Machine Learning for Signal Processing (MLSP)*, October 2021.

3. Z. Kang, R. Horaud, **M. Sadeghi**, “Robust Face Frontalization For Visual Speech Recognition,” in *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops*, 2021.
4. **M. Sadeghi** and X. Alameda-Pineda, “Robust Unsupervised Audio-visual Speech Enhancement Using a Mixture of Variational Autoencoders,” in *IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)*, Barcelona, Spain, May 2020.
5. J. Parsa, **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “Low Mutual and Average Coherence Dictionary Learning Using Convex Approximation,” in *IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)*, Barcelona, Spain, May 2020.
6. J. Parsa, **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “A New Algorithm for Dictionary Learning Based on Convex Approximation,” in *Proceedings of the 27th European Signal Processing Conference (EUSIPCO)*, Coruña, Spain, 2-6 September 2019.
7. **M. Sadeghi**, F. Ghayem, M. Babaie-Zadeh, S. Chatterjee, M. Skoglund, and C. Jutten, “L0Soft: L0 Minimization via Soft Thresholding,” in *Proceedings of the 27th European Signal Processing Conference (EUSIPCO)*, 2-6 September 2019.
8. J. Parsa, **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “Joint Low Mutual And Average Coherence Dictionary Learning,” in *Proceedings of the 26th European Signal Processing Conference (EUSIPCO)*, Rome, Italy, 3-7 September 2018.
9. **M. Sadeghi**, C. R. Rojas, and B. Wahlberg, “A Branch and Bound approach to system identification based on fixed-rank Hankel matrix optimization,” in *18th IFAC Symposium on System Identification (SYSID)*, 2018.
10. F. Ghayem, **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “Accelerated dictionary learning for sparse signal representation,” in *13th International Conference on Latent Variable Analysis and Signal Separation, LVA/ICA*, Grenoble, France, 2017.
11. **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “Regularized low-coherence over-complete dictionary learning for sparse signal decomposition,” in *Proceedings of 24th European Signal Processing Conference (EUSIPCO 2016)*, Budapest, Hungary, 2016.
12. M. Niknejad, **M. Sadeghi**, M. Babaie-Zadeh, H. Rabbani and C. Jutten, “A Dictionary Learning Method for Sparse Representation Using a Homotopy Approach,” in *12th International Conference on Latent Variable Analysis and Signal Separation, LVA/ICA*, Liberec, Czech Republic, 2015.
13. S. Amini, **M. Sadeghi**, M. Joneidi, M. Babaie-Zadeh, and C. Jutten, “Outlier-aware dictionary learning for sparse representation,” in *IEEE International Workshop on Machine Learning for Signal Processing (MLSP 2014)*, Reims, France, 2014.
14. **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “Learning over-complete dictionaries based on parallel atom-updating,” in *Proceedings of 23rd IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, London, 2013.
15. M. Joneidi, **M. Sadeghi**, M. Sahraee, M. Babaie-Zadeh, and C. Jutten, “A study on clustering-based image denoising: From global clustering to local grouping,” in *Proceedings 22nd European Signal Processing Conference (EUSIPCO 2014)*, Lisbon, Portugal, 2014.

16. M. Joneidi, J. Golmohammadi, **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “K-LDA: An algorithm for Learning jointly reconstructive and discriminative dictionaries ,” in *Proceedings 22nd European Signal Processing Conference (EUSIPCO 2014)*, Lisbon, Portugal, 2014.
17. **M. Sadeghi** , M. Joneidi, M. Babaie-Zadeh, and C. Jutten, “Sequential subspace finding: A new algorithm for learning low-dimensional linear subspaces,” in *Proceedings of 21st European Signal Processing Conference (EUSIPCO 2013)*, Marrakesh, Morocco, 2013.
18. **M. Sadeghi**, M. Babaie-Zadeh, and C. Jutten, “A new algorithm for learning over-complete dictionaries,” in *Proceedings of 21st European Signal Processing Conference (EUSIPCO 2013)*, Marrakesh, Morocco, 2013.

TEACHING	Machine Learning	2021, 2022 (Spring, Fall)
	IDMC	
	Statistics and Probability	2021 (Fall)
	IDMC	
	Advanced Artificial Intelligence	2022 (Spring)
	Telecom Nancy	

HONORS & AWARDS	• Received Iran National Science Foundation (INSF) Ph.D. financial support	2016
	• Full travel grant (CHESS project), 13th LVA/ICA workshop, Grenoble, France	2017
	• Received a visiting research scholarship, Information Science and Engineering Department, Royal Institute of Technology (KTH), Stockholm, Sweden	2016
	• Received 1-year National Elite Foundation Ph.D. fellowship	2017
	• Received 1-year National Elite Foundation Ph.D. fellowship	2016
	• Received 1-year National Elite Foundation Ph.D. fellowship	2015
	• Full travel grant (CHESS project), 24th European Signal Processing Conference (EUSIPCO), Budapest, Hungary	2016
	• Rank 2 in the nation-wide university entrance exam for Ph.D.	2013
	• Rank 12 in the nation-wide university entrance exam for M.Sc.	2010
	• Rank 3 among all undergraduate electrical engineering students at Ferdowsi University of Mashhad, IRAN.	2010
• Rank 1 in the first, and 5 in the final stage of the 15 th nation-wide electrical engineering Olympiad, IRAN.	2010	

COMPUTER SKILLS	• <i>Programming Languages and Softwares:</i> MATLAB, Python, PyTorch
	• <i>Typesetting:</i> L ^A T _E X

COMMUNITY SERVICES	Reviewer for the following journals:
	• IEEE Transactions on Signal Processing
	• IEEE Transactions on Image Processing
	• IEEE Transactions on Computational Imaging
	• IEEE Transactions on Industrial Electronics
	• IEEE Transactions on Medical Imaging
	• IEEE Transactions on Pattern Analysis and Machine Intelligence
	• IEEE Signal Processing Letters
	• Signal Processing
	• Neurocomputing