Mohsen Ghafoorian

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▬▬▬ Education

Oct. 2013 - June 2017	**Ph.D. in Machine Learning**. Radboud University, Computer Science Department, Nijmegen, The Netherlands.
Nov. 2016 - Apr. 2017	**Visiting Scholar**. Harvard University, Boston, United States.
2010–2012	**M.Sc. in Artificial Intelligence**. Sharif University of Technology, Tehran, Iran.
2005–2010	**B.Sc. in Software Engineering**. University of Tehran, ECE Department, Tehran, Iran.

▬▬▬ Work Experience

Qualcomm, Amsterdam

Senior Staff ML/CV R&D Eng., (Dec. 23 - present).

Staff ML/CV R&D Eng., (July 21 - Dec. 23).
Developing efficient 3D perception algorithms for augmented/virtual reality.

Technical Team Lead, (June 22 - present).
Leading R&D activities of a geographically distributed team of ∼20 engineers for developing efficient 3D recons. and understanding methods, resulting in 5 papers in top venues and 20 patents filed/to be filed.

Line Manager, (June 22 - present).
Coaching a team of ∼10 machine learning R&D engineers.

TomTom, Amsterdam

Senior Machine Learning R&D Eng., (July 17 - June 21).
Working as a deep learning expert on automated generation of HD maps for self-driving cars.

Technical Team Lead, (Aug. 19 - June 21).
Leading R&D activities of a team of engineers for expanding the coverage of HD maps.

Line Manager, (March 20 - June 21).
Coaching a team of machine learning R&D engineers.

Internal director of Atlas Lab, (Sept. 20 - June 21).
TomTom-side director and coordinator of TomTom & UvA Atlas lab with 5 Ph.D. students.

Azad University

Lecturer, Malard, Iran, (Jan. 13 - Sept. 13).
Lecturing CS Bachelor's courses, Artificial Intelligence, and Programming in C.

Allameh Helli3

Computer Group Manager and Lecturer, *Tehran, Iran*, (Feb. 10 - Sept. 13).
Teaching C++, data structures, algorithms, supervising AI projects; managing a team of 10 CS teachers. (National Organization for Development of Exceptional Talents)

Farakam software

Software Engineering Intern, Tehran, Iran, (May 09 - Sept. 09).
Domain model design and development (Java) of a social networking system for educational purposes.

▬▬▬ Honors and Awards

2021	**Best paper award**. International conference on digital image processing (ICDIP 2021).
2016	**Research visit grant**. Awarded by the Surgical Planning Laboratory, Harvard, for 9K USD.
2016	**Annual travel grant of the Dutch MS Research Foundation**. For a research visit to Harvard University.
2010	**Top 0.3% rank**. 27-th rank in the national Artificial Intelligence graduate program entrance exam, among nearly 10,000 participants

2007 **2nd team rank**.
Univ. of Tehran qualification contest for Asia regional ACM algorithmic programming contest, Tehran site.

2005 **Top 0.2% rank**.
448-th rank in the national Bachelor's program entrance exam, among nearly 300,000 participants.

Selected Publications

You can see my full list of publications on my Google Scholar page.

1. A. Porfiri Dal Cin, G. Dikov, J. Ju and **M. Ghafoorian**, *AnyMap: Learning a General Camera Model for Structure-from-Motion with Unknown Distortion in Dynamic Scenes*, Accepted at CVPR 2025.

2. F. Langer, J. Ju, G. Dikov, G. Reitmayr and **M Ghafoorian**, *FastCAD: Real-Time CAD Retrieval and Alignment from Scans and Videos*, ECCV 2024.

3. B. Ehteshami, G. Kumar, A. Royer, C. Louizos, T. Blankevoort and **M. Ghafoorian**, *InterroGate: Learning to Share, Specialize, and Prune Representations for Multi-task Learning*, BMVC 2024.

4. X. Shi, G. Dikov, G. Reitmayr, T Kim, and **M. Ghafoorian**, *3D Distillation: Improving Self-Supervised Monocular Depth Estimation on Reflective Surfaces*, ICCV 2023.

5. J. Ju, Ching W. Tseng, O. Bailo, G. Dikov, and **M. Ghafoorian**, *DG-Recon: Depth-Guided Neural 3D Scene Reconstruction*, ICCV 2023.

6. O. Ulger, J. Wiederer **M. Ghafoorian**, V. Belagiannis, P. Mettes, *Multi-Task Edge Prediction in Temporally-Dynamic Video Graphs*, BMVC 2022.

7. E. Stammes, T. Runia, M. Hofmann, and **M. Ghafoorian**, *Find it if You Can: End-to-End Adversarial Erasing for Weakly-Supervised Semantic Segmentation*, ICDIP 2021. **Best Paper Award**.

8. M. Bakhtiariziabari, and **M. Ghafoorian**, *Gambling Adversarial Nets for Hard Sample Mining and Structured Prediction: Application in Ultrasound Thyroid Nodule Segmentation*, MICCAI 2020 Machine Learning for Medical Imaging.

9. L. Samson, N. van Noord, O. Booij, M. Hofmann, E. Gavves and **M. Ghafoorian**, *I Bet You Are Wrong: Gambling Adversarial Networks for Structured Semantic Segmentation*, ICCV 2019 Computer Vision for Road Scene Understanding and Autonomous Driving.

10. **M. Ghafoorian**, C. Nugteren, N. Baka, O. Booij, M. Hofmann, *EL-GAN: Embedding Loss Driven Generative Adversarial Networks for Lane Detection*, ECCV 2018 Computer Vision for Road Scene Understanding and Autonomous Driving.

11. **M. Ghafoorian**, N. Karssemeijer, T. Heskes, M. Bergkamp, J. Wissink , J. Obels, K. Keizer, F.E. de Leeuw, B. van Ginneken, E. Marchiori and B. Platel, *Deep multi-scale location-aware 3D convolutional neural networks for automated detection of lacunes of presumed vascular origin*, NeuroImage Clin. 2017.

12. **M. Ghafoorian**, N. Karssemeijer, T. Heskes, I. van Uden, F.E. de Leeuw, B. van Ginneken and B. Platel, *Non-uniform patch sampling with deep convolutional neural networks for white matter hyperintensity segmentation*, IEEE International Symposium on Biomedical Imaging (ISBI) 2016.

13. **M. Ghafoorian**, N. Karssemeijer, T. Heskes, I. van Uden, C. Sanchez, G. Litjens, F.E. de Leeuw, B. van Ginneken, E. Marchiori and B. Platel, *Location-sensitive deep convolutional neural networks for segmentation of white matter hyperintensities*, Nature Scientific Reports 2017.

14. **M. Ghafoorian***, A. Mehrtash*, T. Kapur, N. Karssemeijer, E. Marchiori, M. Pesteie, C. Guttmann, F-E de Leeuw, C. Tempany, B. van Ginneken, A. Fedorov, P, Abolmaesumi, B. Platel, W. Wells III, *Transfer Learning for Domain Adaptation in MRI: Application in Brain Lesion Segmentation*, MICCAI 2017.

15. **M. Ghafoorian***, J. Teuwen*, R. Manniesing, F.E. de Leeuw, B. van Ginneken, N. Karssemeijer and B. Platel, *Student Beats the Teacher: Deep Neural Networks for Lateral Ventricles Segmentation in Brain MR*, SPIE Medical Imaging 2018.

16. **M. Ghafoorian**, N. Karssemeijer, I. van Uden, F.E. de Leeuw, T. Heskes, E. Marchiori and B. Platel, *Automated detection of white matter hyperintensities of all sizes in cerebral small vessel disease*, Medical Physics 2016.

17. **M. Ghafoorian**, N. Taghizadeh and H. Beigy, *Automatic abstraction in reinforcement learning using ant system algorithm*, AAAI Spring Symposium: Lifelong Machine Learning 2013.

18. **M. Ghafoorian**, N. Karssemeijer, T. Heskes, I. van Uden, F.E. de Leeuw, E. Marchiori and B. Platel, *Small white matter lesion detection in cerebral small vessel disease*, SPIE Medical Imaging 2015.

19. A. Mehrtash, **M. Ghafoorian**, G. Pernelle, A. Ziaei, F.G. Heslinga, K. Tuncali, A. Fedorov, R. Kikinis, C.M. Tempany, W.M. Wells, P. Abolmaesumi, *Automatic Needle Segmentation and Localization in MRI with 3D Convolutional Neural Networks: Application to MRI-targeted Prostate Biopsy*, IEEE transactions on medical imaging 2018.
20. K. Vijverberg, **M. Ghafoorian**, I. van Uden, F.E. de Leeuw, B. Platel and T. Heskes, *A single-layer network unsupervised feature learning method for white matter hyperintensity segmentation*, SPIE Medical Imaging 2016.
21. G. Litjens, T. Kooi, B. Ehteshami, A. Setio, F, Ciompi, **M. Ghafoorian**, J. van der Laak, B. van Ginneken, and C. Sanchez, *A Survey on Deep Learning in Medical Image Analysis*, Medical Image Analysis 2017.

* represents equal contributions

Invited Talks

Dec. 20 **Guest lecture at Applied Machine Learning course**, University of Amsterdam.
Adversarial training for map making.

Dec. 19 **The Netherlands Conference on Computer Vision (NCCV)**, Wageningen, The Netherlands.
AI for map-making: Adversarial structured semantic segmentation.

Dec. 18 **Nijmegen Deep Learning Meet-up**, Nijmegen, The Netherlands.
AI for map-making: Embedding Loss Generative Adversarial Networks for Lane Detection.

Jan. 17 **24th NA-MIC Project Week**, CSAIL MIT, Boston, MA.
Deep Learning Under the Hood (Received a top-ranking rating of 4.3/5 from the audience).

Oct. 15 **Workshop on Automated Analysis of NeuroImaging Data**, Utrecht, The Netherlands.
White matter hyperintensity segmentation using location-sensitive convolutional neural networks.

Teaching/Supervision Experience

2024 **Co-Supervisor**, *Ph.D. student Intern, Andrea Profiri Dal Cin*, Politecnico di Milano.
Topic: General camera model for dynamic structure from motion: **Accepted @ CVPR25**

2024 **QIF Mentor**, *Ph.D. student, Siwei Zhang*, ETHZ.
Topic: Human motion prediction with plausible scene interactions

2023-2024 **Co-Supervisor**, *Ph.D. student Intern, Florian Langer*, University of Cambridge.
Topic: Contrasting Learning and Retrieval for CAD-based 3D Reconstruction: **ECCV24 paper**

2022-2023 **Co-Supervisor**, *Ph.D. student Intern, Xuepeng Shi*, Imperial College London.
Topic: Handling reflective surfaces in monocular self-supervised depth estimation: **ICCV23 paper**

2020-2021 **Co-Supervisor**, *Ph.D. student, Osman Ulger*, University of Amsterdam.
Topic: Structured semantic segmentation: **BMVC22 paper**

2019-2020 **Co-Supervisor**, *Master's AI Thesis, Erik Stammes*, University of Amsterdam.
Topic: Adversarial weakly supervised semantic segmentation: **ICDIP21 Best paper**

2019 **Co-Supervisor**, *Master's AI Thesis, Laurens Samson*, University of Amsterdam.
Topic: Adversarial structured semantic segmentation: **ICCVW19 paper**

2015 **Co-Supervisor**, *Master's AI Internship, Farhad Ghazvinian Zanjani*, Radboud University.
Topic: 3D convnets for spatiotemporal CT analysis.

2016 **Supervisor**, *Master's Internship, Jiri Obels*, Radboud University.
Topic: 3D convnets for brain anomaly detection.

2014 **Co-Supervisor**, *Bachelor AI Thesis, Koen Vijverberg*, Radboud University.
Topic: Unsupervised representation learning for brain anomaly detection: **SPIE16 paper, best thesis award**

2016 **Lecturer**, *Deep Learning Workshop*, Radboud University.

2016 **Lecturer**, *M.Sc. course: Intelligent Systems in Medical Imaging*, Radboud University.
rated with a median of 9/10 by the students.

2013 **Lecturer**, *B.Sc. course: Artificial Intelligence*, Azad University.

2013 **Lecturer**, *B.Sc. course: Introduction to Programming in C*, Azad University.

2015, 2016 **Teaching Assistant**, *M.Sc. course: Machine Learning in Practice*, Radboud University.

2014, 2015 **Teaching Assistant**, *M.Sc. course: Computer-Aided Diagnosis*, Radboud University.

2014	**Teaching Assistant**, *M.Sc. course: Bio-inspired Computing*, Radboud University.
2011	**Teaching Assistant**, *M.Sc. course: Machine Learning*, Sharif University of Technology.
2012	**Teaching Assistant**, *B.Sc. course: Artificial Intelligence*, Sharif University of Technology.
2012	**Teaching Assistant**, *B.Sc. course: Intro. to Programming*, Sharif University of Technology.
2006, 2007	**Teaching Assistant**, *B.Sc. course: Data Structures and Algorithms*, University of Tehran.
2006, 2007	**Teaching Assistant**, *B.Sc. course: Introduction to Programming in C*, University of Tehran.

Scientific Peer Review

- International Conference on Learning Representations (ICLR) 2021, 2022, 2023.
- Neural Information Processing Systems (NeurIPS) 2018 (rated among top 30% reviewers), 2019, 2020, 2021, 2022.
- British Machine Vision Conference (BMVC) 2019, 2020, 2021.
- International Joint Conference on Neural Networks (IJCNN) 2019, 2020.
- IEEE Transactions on Medical Imaging (TMI), including the Deep Learning Special Issue 2015.

Skills

Computer Skills	Programming Languages: **Python, C, C++, Java, Matlab**
	Deep Learning Libraries: **PyTorch, Tensorflow**
	Machine Learning/Image Processing Libraries: **OpenCV, sklearn, skimage**
Analytical Skills	**Data Structures, Design and Analysis of Algorithms**
	Object Oriented and Software Design Patterns

Basic Information

Nationalities	Dutch-Iranian
Language Skills	Persian (Native), English (Fluent), Dutch (B1)
Born in	1987, May