

Mohsen Ghafoorian

✉ MohsenGhafoorian@gmail.com
📄 <http://mohsenghafoorian.nl>

Education

- Oct. 2013 - **Ph.D. in Machine Learning.**
June 2017 Radboud University, Computer Science Department, Nijmegen, The Netherlands.
- Nov. 2016 - **Visiting Scholar.**
Apr. 2017 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, **Senior Staff ML/CV R&D Eng.**, (Dec. 23 - present).
Amsterdam **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, **Senior Machine Learning R&D Eng.**, (July 17 - June 21).
Amsterdam 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 **Lecturer**, Malard, Iran, (Jan. 13 - Sept. 13).
University Lecturing CS Bachelor's courses, Artificial Intelligence, and Programming in C.
- Allameh **Computer Group Manager and Lecturer**, *Tehran, Iran*, (Feb. 10 - Sept. 13).
Helli3 Teaching C++, data structures, algorithms, supervising AI projects; managing a team of 10 CS teachers.
(National Organization for Development of Exceptional Talents)
- Farakam **Software Engineering Intern**, Tehran, Iran, (May 09 - Sept. 09).
software 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*, under review in 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. Bakhtiarizabari, 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*, Neurolmage 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. Guttman, F-E de Leeuw, C. Tempny, 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: **CVPR25 submission**
- 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 Programming Languages: **Python, C, C++, Java, Matlab**
- Skills Deep Learning Libraries: **Pytorch, Tensorflow, Keras, Theano, Lasagne**
- Machine Learning/Image Processing Libraries: **OpenCV, sklearn, skimage**
- Analytical **Data Structures, Design and Analysis of Algorithms**
- Skills **Object Oriented and Software Design Patterns**

Basic Information

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