

Nadieh Khalili | Ph.D

Machine learning expert

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Permit status: valid visa for Netherlands



Summary

I recently finished my PhD in machine/deep learning applied in medical image analysis at UMC Utrecht. The results of my research are using in clinical research and published in world-class journals and conferences. I am passionate about artificial intelligence and its applications to improve life quality. I am open to an opportunity where I can apply my machine learning knowledge in the industry.

EDUCATION

University Medical Center, Utrecht University

Ph.D in development of machine learning methods for medical image analysis

Utrecht, Netherlands

March 2020

Bern University

MSc. of biomedical engineering

Honors: Magna Cum Laude

Bern, Switzerland

Sep 2015

Science & Research branch of Azad University

BSc. of biomedical engineering

Tehran, Iran

Sep 2011

EXPERIENCE

Researcher and Ph.D Candidate

March 2016 - Present

- Developing deep learning and computer vision algorithm for 2D/3D medical images (Currently using in neonatology department)
- Developing automatic method for segmentation, anomaly detection/ object detection, classification, regression and pattern recognition.
- Developing deep learning networks, convolutional neural networks (CNN), Generative Adversarial Network (GAN)
- Applying well-known CNN networks such as Unet, cycleGAN for segmentation and motion correction
- Using classical machine learning tools like SVM, Random Forest, and more.
- Fluency in Python 3, deep learning frameworks (PyTorch, Keras/Tensorflow, Lasagne/Theano) and classical frameworks (scikit-learn, pandas, SciPy, itk/vtk).
- Supervising master students in their master projects

Researcher in Basel University

Sep 2014-Feb 2016

- Developing an automatic method with classical machine learning algorithm using hand crafted features
- Multi-modal registration of 2D histology images on 3D CT dataset

- Evaluation of various feature extraction methods such as SIFT, HOG, SURF and self-similarity on image registration

SELECTED PUBLICATION

- [1] **N. Khalili**, E. Turk, M.J.N.L. Benders, P. Moeskops, N.H.P. Claessens, R. de Heus, A. Franx, N. Wagenaar, J.M.P.J. Breur, M.A. Viergever, I. Išgum, “Automatic extraction of the intracranial volume in fetal and neonatal mr scans using convolutional neural networks”, *Neuroimage Clinical*, 2019.
- [2] **N. Khalili**, N. Lessmann, E. Turk, N. Claessens, R. de Heus, T. Kolk, M. Viergever, M. Benders, and I. Išgum, “Automatic brain tissue segmentation in fetal mri using convolutional neural networks”, *Magnetic resonance imaging*, 2019.
- [3] **N. Khalili**, E. Turk, M. Zreik, M. A. Viergever, M. J. N. L. Benders, and I. Išgum, “Generative adversarial network for segmentation of motion affected neonatal brain MRI”, in *Medical Image Computing and Computer Assisted Intervention – MICCAI 2019*, Cham: Springer International Publishing, 2019, pp. 320–328, ISBN: 978-3-030-32248-9.
- [4] **N. Khalili**, M.J.N.L. Benders, M.Zreik, N. van der Aa, N. Wagenaar, J.M.P.J. Breur, M.A. Viergever, I. Išgum, “Brain tissue segmentation in neonatal MRI using multi-modal cnn”, *In prepration*, 2020.
- [5] M. N. Cizmeci, **N. Khalili**, N. H. Claessens, F. Groenendaal, K. D. Liem, A. Heep, I. Benavente-Fernández, H. L. van Straaten, G. van Wezel-Meijler, S. J. Steggerda, *et al.*, “Assessment of brain injury and brain volumes after posthemorrhagic ventricular dilatation: A nested substudy of the randomized controlled elvis trial”, *The Journal of pediatrics*, vol. 208, pp. 191–197, 2019.
- [6] N. Claessens, **N. Khalili**, I. Isgum, H. Ter Heide, T. Steenhuis, E. Turk, N. Jansen, L. de Vries, J. Breur, R. de Heus, *et al.*, “Brain and csf volumes in fetuses and neonates with antenatal diagnosis of critical congenital heart disease: A longitudinal MRI study”, *American Journal of Neuroradiology*, vol. 40, no. 5, pp. 885–891, 2019.
- [7] M. Zreik, R. W. van Hamersvelt, **N. Khalili**, J. M. Wolterink, M. Voskuil, M. A. Viergever, T. Leiner, and I. Išgum, “Deep learning analysis of cardiac ct angiography for detection of coronary arteries with functionally significant stenosis”, *Transavtion on medical imaging*, 2019.
- [8] **Khalili, N.**, P. Moeskops, N. H. P. Claessens, S. Scherpenzeel, E. Turk, R. de Heus, M. J. N. L. Benders, M. A. Viergever, J. P. W. Pluim, and I. Išgum, “Automatic segmentation of the intracranial volume in fetal mr images”, in *Fetal, Infant and Ophthalmic Medical Image Analysis*, Cham: Springer International Publishing, 2017, pp. 42–51, ISBN: 978-3-319-67561-9.
- [9] **N. Khalili**, N. Lessmann, E. Turk, N. Claessens, R. de Heus, T. Kolk, M. Viergever, M. Benders, and I. Išgum, “Brain tissue segmentation in fetal MRI using convolutional neural networks with simulated intensity inhomogeneities”, in *International Society for Magnetic Resonance in Medicine*, 2019.

- [10] J. Fernandes, V. Alves, **N. Khalili**, M. J. Benders, I. Išgum, J. Pluim, and P. Moeskops, “Convolutional neural network-based regression for quantification of brain characteristics using MRI”, in *World Conference on Information Systems and Technologies*, Springer, 2019, pp. 577–586.

AWARDS AND ACHIEVEMENTS

- Magna cum laude merit award for abstract at ISMRM 2019
- Oral presentation in MICCAI 2019 (top 5%)
- Invited talk at ISMRM 2019
- MICCAI travel award
- Peer-reviewer in international journals and conferences

PROGRAMMING

Python- Advance

MATLAB- Advance

C++ Intermediate

SKILLS

Network architecture design

Image processing

Natural language processing (NLP)

Amazon AWS cloud base data management

LANGUAGES

English-Fluent

Dutch-Elementary

German-Elementary

Persian-Native