Resume

Personal Details

Name: Reza Hassanpour

Nationality: Dutch & Iranian

Languages:

English (C2),
Dutch (B1),
Turkish (C2),
Persian (native)

Current position:

Assistant Professor, Computing Science department, Groningen university (https://www.rug.nl/staff/r.zare.hassanpour/?lang=en) , 2023-present

Professor, Computer Engineering Department, Konya Food and Agriculture University, Turkey, (https://mmf.gidatarim.edu.tr/akademik-personel) 2022-present

Previous positions:

Lecturer at the Communication, Media, and Information Technology department of Rotterdam Applied University (www.hr.nl), the Netherlands, 2018 - 2023

ErasmusMC, affiliated with the medical image processing research group (0 fte), December 2020 – December 2022

Erasmus University, School of Management (www.rsm.nl), supervising graduate thesis, Spring semeters in 2020, 2021, 2022.

Associate Professor of Computer Engineering Department, Çankaya University (www.cankaya.edu.tr), Ankara, Turkey (English taught) 1999-2018

Visiting scholar at the computer engineering department of the University of Alabama at Birmingham (UAB). May 2008 – January 2009

Visiting scholar at the Computer Engineering department of TUDelft, 2011-2012

Contact information

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Education:

B.Sc. Computer Hardware Engineering Shiraz University, Shiraz, Iran (with honors), 1995.

Senior project: Implementing the kernel of a multi-tasking operating system to run in the protected mode of Intel 80x86 processors

M.Sc. Computer Engineering Polytechnic University of Tehran, Tehran, Iran, 1998.

Thesis title: Human face detection from images of complex background

Ph.D., Computer Engineering. Middle East Technical University, Ankara, Turkey. 2003.

Dissertation title: Reconstruction of a 3D human head model from images. The thesis considered camera auto-calibration as part of the reconstruction procedure

Work Experience

Industry Experience

Trafikent Driver Training Simulator (2005-2006)
A driver-training and psychological testing simulator which includes all hardware and software components (www.meteksan.com.tr)

The Layout LAB (2006-2008)
Layout lab is a virtual platform for the optimization of micro-patterning processes. The project included the visualization, data modeling, and GUI parts and was part of a collaboration between Cankaya University and GenIsys Company for software development. (http://www.genisysgmbh.de)

Picture Archiving and Communications Systems (PACS) (2008-2009)
2D and 3D DICOM image visualizer, renderer, and design and implementation of the related image processing tools. (www.akgunyazilim.com.tr)

Converting 2D Movies to 3D (2011-2012)
The main goal of the projet was depth estimation using 2-dimensional visual data. Although the estimated depth values were approximate, the feeling of a 3-dimensional environment when the movies were played was achieved as the main outcome. The

project was funded by Turkish ministry of industry. (https://www.sanayi.gov.tr/)

Web Crawler for Content-based Information Retrieval (2012-2013)

The project considered analyzing text data from local online newspapers and categorizing them based on the requested characteristics. The extension of the project to include video and audio suggested. The project was funded by Turkish ministry of industry. (https://www.sanayi.gov.tr/)

Video Stabilization for Moving Platforms (2010- 6 months)

The project tries to eliminate the shaking effect of the camera by analyzing the captured video and reconstructing the video.

Content-based CT Liver Image Retrieval: (2010-2011)

The project aimed at segmenting liver from CT images, feature extraction, and retrieving all similar cases from a database of liver CT images. The system includes relevant feedback for user interaction.

Detection and Segmentation of Mitochondria and its internal Organelles from Transmission Electron Microscopy Tomography Images (2012- 2018)

This study aimed to develop image analysis methods for automatic and semi-automatic detection and segmentation of mitochondria in TEM tomography images. The developed methods and software are intended to help the scientists working in the field to do a faster and more accurate analysis of associations between disease and physical structure of mitochondria. The project is going on as a collaboration between Cankaya University, Middle East Technical University, and the National Center for Microscopy and Imaging Research at San Diego, CA. USA.

Detection and Segmentation of Blood Vessels in Fundus Images (2017-2018)

The project aims at detecting, segmenting, and 3D reconstruction of blood vessels from Fundus images. The interesting features were deformations and clog visible in the blood vessels and the possible relationships with diabetes. A model using a deep neural network was developed to handle the small size of the dataset. The project was in collaboration with the Ophthalmology department of Sehir Hospital, Ankara- Turkey (https://ankarasehir.saglik.gov.tr/)

Segmentation and Statistical Analysis of Cracks on the Surface of Reinforced Concrete (September 2017, February 2018)

The main goal of the project is an experimental and comparative study of the impact of fibers on reinforcing concretes and preventing large-scale cracks. The project was funded by Kordsa company (www.kordsa.com.tr)

Using Iris Patterns for Identification through Deep Learning (December 2017, June 2018)

Iris patterns of a group of people were used as a feature to identify them. The neural network model was trained using only a limited number of images, however, relatively high performance was achieved.

Gait Analysis for Identification using Neural Networks (February 2019-June 2019)

The project aimed at developing tools enabling people identification using their body characteristics, including the way they walk. A pre-trained model extracts the features by analyzing the 3D trajectory of a sensor kept in their pocket when walking. The period of cycles was used to estimate the walking speed and hence making the application insensitive to the speed.

Feature Space Dimensionality Reduction for Segmentation and Classification of Tumors using MR Images (In collaboration with ErasmusMC, 2019-2022)

The aim of the project is two folds. Firstly, we try to reduce the dimensionality of the feature space. Secondly, as in medical applications, the amount of required data for training models is limited and the time and manpower needed to annotate them is not available in all cases, the project aims at finding the best subset that can be used for training the models. Besides, automating the relevant optimizations is also considered.

Administrative Responsibilities

Department vice-chair (2006-2018)

Head of the curriculum committee (2012-2018)

Member of accreditation committee (2011-2016)

Member of the graduate program committee (2013-2018)

Teaching experience

Dates	University	Location	Position
1999-2004	Cankaya University	Ankara-Turkey	Instructor
2004-2017	Cankaya University	Ankara-Turkey	Assistant Professor
2017-2018	Cankaya University	Ankara-Turkey	Associate Professor
2018-2023	Rotterdam University	Rotterdam-Netherlands	Lecturer

2019-2023	Erasmus University	Rotterdam-Netherlands	Supervising Graduate Theses
2023-present	Groningen University	Groningen-Netherlands	Assistant Prof.
2022-present	Konya Food and Agriculture University	Konya-Turkey	Professor

Courses taught in the Computer Engineering Department of Cankaya University since 1999 until 2018 in undergraduate and graduate levels:

- Computer Programming (C/C++)
- Logic Design
- Computer Organization
- Data Structures
- Microprocessors
- Data Management and File Organization
- Database Management Systems
- Software Engineering
- Operating Systems (Graduate and Undergraduate)
- Data Communications
- Computer Networks (Graduate and Undergraduate)
- Programming Languages
- Compilers
- Image Processing (Graduate and Undergraduate)
- Pattern Recognition (Graduate)
- Computer Graphics (Graduate and Undergraduate)
- Multimedia and the Internet (Graduate)
- Artificial Neural Networks (Graduate)
- Machine Learning (Graduate)

Courses taught at Rotterdam University
- Functional Programming with Python (Undergraduate)
- Object-Oriented Programming with Python (Undergraduate)
- Operating System ((Undergraduate)
- Computer Networks (Undergraduate)
- Concurrency (Undergraduate)
- Software Analysis and Design (Undergraduate)
- Network and Web Security (Undergraduate)

Research Project in collaboration with ErasmusMC

Extracting association between radiomics and low level image features using explainable machine learning methods.

Research Projects

- Human face detection and identification
- Fingerprint segmentation and identification

- Optical character recognition for Arabic letters
- 3D terrain modeling
- Hand gesture detection and interpretation
- Medical Image Segmentation
- Microscopic Image Segmentation
- 3D hand reconstruction

Graduate Theses Supervised at Erasmus University
- Using machine learning algorithms to predict scooter sharing usage in India
- Compare the Price Determinants of Airbnb Listings in London, New York City, and the Globe Using Machine Learning
- Big data mining techniques and unconditional forecasting to understand the energy consumption patterns of residential homes
- Predictive value of tweet sentiment and volume on the Bored Ape Yacht Club's trading volume and price
- Current State Analysis: A Maturity Model for Effective IAM Implementation
- The effect of a personalized learning system on skill development and knowledge gain of business students
- The Corporate Social Message: How to generate the best online response
- The impact of multi-unit promotions for drug stores
- The predictive power of Twitter sentiment for forecasting cryptocurrencies' short-term price movements
- Improving Repair Policies in the Bicycle Industry: Predictive Maintenance with Machine Learning
- Shared Autonomous Vehicles as Alternatives to Existing Public Transport Options
- The effect of visual stimulati on engagement in appararel m-commerce platfroms, analysis on the first impression and view counts.
- Mitigating Peak Demand by using V2G Technology for storing excess PV energy in Electric Vehicles
- Connected and Autonomous vehicles around critical objects: an evaluative framework of V2I connectivity around tunnels
- The impact of the Covid-19 pandemic on the spread of hate speech content targeting Asian communities
- An exploration of machine learning algorithms across audit quality proxies
- Whether Weather Matters: A study into the effect of daily weather parameters on the valence of Yelp restaurant reviews
- Dynamic Pricing in The Sharing Economy - The Relationship Between Online Review Content and Price Movements: Evidence from Airbnb
- The Effects of NFL Team Performance On Their Corporate Sponsors' Stock Prices
- Market Direction Prediction Employing ML techniques: A Technical Analysis Approach
- Modelling the prices of Airbnb listings in Amsterdam based on their characteristics and neighbourhood
- The Influence of Bike Sharing Capacity Expansions on the Usage of Bike Sharing and Subway Ridership during the COVID-19 Pandemic: The Case of New York City
- The Prediction of Textile Donation Site Performance based on Spatial Data
- Advanced Analytics as the Enabler of Organizational Agility: A Case Study of Heineken N.V.

Graduate Theses Supervised at Cankaya University

- Automatic Detection Of Breast Cancer in Mammography Images (**PhD**)
- Organ Segmentation in Computed Tomography (CT) Images (**PhD**)
- Detection and Segementation of Mitochondria in Microscopic Images (**PhD**)
- 3D Hand Reconstruction with Binocular Vision
- Image-Based Barcode Reader and Analyzer
- Automatic Conversion of 2D Videos to 3D
- Finger Print Detection in Digital Images
- Model-Based Human Face Detection using Skin Color Segmentation
- A Comparative Study of Human Face Identification Methods
- Optical Character Recognition for Arabic Letters
- Hand Motion Tracking and Gesture Analysis
- Object Tracking in Infra-Red Images
- Superimposing in 3D Images for Object Tracking
- 3D Object Tracking
- Image Segmentation in 3D
- 3D Hand Modeling
- Detecting Image Manipulation

Research Areas:

3D Computer Vision, Image Processing, Machine Learning, Computer Graphics, Computer Networks, Cybersecurity.

Other Experiences

Experienced in programming with C/C++, Java, C#, Python, Matlab, and using Image Processing libraries such as VTK/ITK, OpenCV

Experience with Machine Learning libraries such as TensorFlow, Keras, ML toolbox of Matlab

Experienced in using DICOM protocol

Experience with CISCO-CCNA

Publications

Google scholar URL:
https://scholar.google.com/citations?user=qalKX_oAAAAJ&hl=en

Refereed Journal Publications

1. Ahmet Oztoprak, **Reza Hassanpour**, Aysegul Ozkan, Kasim Oztoprak, Security Challenges in Wireless Sensor Networks: A Review, ACM Journal of Computing Surbeys, Under review.

2. Maede Daryanavard, **Reza Hassanpour**, Asadollah Shahbahrami, Georgi Gaydadjiev, Deep learning based image aesthetic quality assessment: A Review, ACM Journal of Computing Surbeys, Under review.

3. Paulus Pietiläinen, **Reza Hassanpour**, Exploring Mechanisms and Moderating Variables Behind Reddit Sentiment's Predictive Value for Stock Returns, Journal of Information Systems, under review.

4. Karaca E., Isik F., **Hassanpour R**., Oztoprak K., Kemer O., Machine Learning-Based Endothelial Cell Analysis of Patients Undergoing Descemet Membrane Endothelial Keratoplasty Surgery, journal of Biomeidcal Engineering, 2024.

5. Akbar Telikani, Nima Esmi Rudbardeh, Shiva Soleymanpour, Asadollah Shahbahrami, Jun Shen, Georgi Gaydadjiev, **Reza Hassanpour**, A Cost-Sensitive Machine Learning Model With Multitask Learning for Intrusion Detection in IoT, IEEE Transactions on Industrial Informatics. 2023

6. Maede Sharifnejad, Asadollah Shahbahrami, Alireza Akoushideh, **Reza Hassanpour**, Facial Expression Recognition using a Combination of Enhanced LBP and PHOG Features Extraction, IET Image Processing, Vol. 15/2 , pp. 468-478, 2021

7. Yumusak, S., Layazali, S., Oztoprak, K., & **Hassanpour, R**. Low-diameter topic-based pub/sub overlay network construction with minimum–maximum node degree. PeerJ Computer Science, 7, e538. 2021

8. Faten Al Bajjari, **Reza Hassanpour**, A Model for Adopting Cloud Computing in Government Sector: Case Study in Iraq, International Journal of Grid and Distributed Computing, Vol. 13, No. 2, 2020

9. **Reza Hassanpour**, Anwar A Abufares, Gul Tokdemir, Automatic Detection and Classification of Brain Tumor in Magnetic Resonance Images, Journal of Multimedia Technology & Recent Advancements, Vol. 5, Issue 2, pp. 34-40

10. Nawfal F. Abdulqader, **Reza Hassanpour**, "Active Defense Strategy against Jamming Attack in Wireless Sensor Networks", International Journal of Computer Network and Information Security (IJCNIS), Vol.11, No. 11, pp. 1-13, 2019.

11. Mohammed Alsultan, Kasim Oztoprak, **Reza Hassanpour**, "Power-aware routing protocols in wireless sensor network", IEICE Transactions on Communications, Vol. 99, No. 7 pp. 1481-1491, 2016

12. Serdar F Tasel, Erkan U Mumcuoglu, **Reza Z Hassanpour**, Guy Perkins, "A validated active contour method driven by parabolic arc model for detection and segmentation of mitochondria", Journal of structural biology, vol. 194, No. 3, pp. 253-271, 2016

13. **Reza Hassanpour**, "Illicit Material Detection using Dual-Energy X-Ray Images", International Arab Journal of Information Technology, vol. 13(4), July 2016.

14. **Reza Hassanpour**, "A Two-Stage Matching Method for Multi-Component Shapes," Advances in Electrical and Computer Engineering, vol. 15, no. 1, pp. 143-150, 2015.

15. Aref Jafari, **Reza Hassanpour**, Asadollah Shahbahrami, Stephan Wong, "A Combined Spatial and Frequency Based Texture Model for Organ Segmentation in Computed Tomography Examinations", Journal of Medical Imaging and Health Informatics, vol 4(2), pp. 230-236, 2014.

16. Erkan U Mumcuoglu, **Reza Hassanpour**, Serdar Tasel, Guy Perkins, Maryann Martone, Metin N Gurcan, "Computerized Detection and Segmentation of Mitochondria on Electron Microscope Tomography Images", Journal of Microscopy, 246 (3), pp. 248-265, 2012.

17. Pinar Yildirim; Cinar Ceken; **Reza Hassanpour**; Sadik Esmelioglu; Mehmet Resit Tolun, "Mining MEDLINE for the Treatment of Osteoporosis", Journal of medical systems, 36 (4), 2339-2347, 2012.

18. Pinar Yildirim, Çinar Çeken, **Reza Hassanpour**, and Mehmet Resit Tolun, "Prediction of Similarities Among Rheumatic Diseases", Journal of medical systems, 36 (3), pp. 1485-1490, 2012.

19. Seda Sahin, Mehmet Resit Tolun and **Reza Hassanpour**, "Hybrid Expert Systems: A Survey of Current Approaches and Applications", Expert Systems with Applications, Vol. 39 (4), pp. 4609-4617, 2011.

20. **Reza Hassanpour**, Volkan Atalay, "An Experimental Study on the Sensitivity of Auto-Calibration to Projective Camera Model Parameters", Journal of Optical Engineering Vol 45(4) April 2006.

21. Burcak Otlu, Volkan Atalay and **Reza Hassanpour**, "Relative Consistency of Projective Reconstructions Obtained from the Same Image Pair", Int. Journal of Pattern Recognition and Artificial Intelligence, IJPRAI 20(5): pp. 649-664 (2006).

22. **Reza Hassanpour** and Volkan Atalay, "Camera Auto-Calibration using a Sequence of 2D Images with Small Rotations", Pattern Recognition Letters, Vol. 25, Issue 9, pp. 989-997, 2004

Refereed International Conference Publications

23. Kasim Oztoprak, **Reza Hassanpour**, Efficient Dynamic Federated Learning for Imbalanced Data, 2023 IEEE International Conference on Big Data (BigData), 5877-5879

24. **Reza Hassanpour**, N. Netten, T. Busker, M. Shoae Bargh, S. Choenni, Adaptive Feature Selection Using an Autoencoder and Classifier: Applied to a Radiomics Case, Proceedings of the 38th ACM/SIGAPP Symposium on Applied Computing, 1256-1259

25. Fathia G Ibrahim Salem, **Reza Hassanpour**, Abdussalam Ali Ahmed, Aisha Douma, Detection of Suspicious Activities of Human from Surveillance Videos, IEEE International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, pp. 794-801, 2021

26. I. Kamachy, **R. Hassanpour**, R. Choupani, "Classification of Diabetic Retinopathy using Pre-Trained Deep Learning Models", 2020 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)

27. **R Hassanpour**, E Dogdu, R Choupani, O Goker, N Nazli, "Phishing e-mail detection by using deep learning algorithms" Proceedings of the ACMSE Conference 2018

28. Ammar Jameel Hussein, **Reza Hassanpour**, Abd Al-Razak Tareq, Kasim Oztoprak, "An Interoperable Design for the Internet of Things", International Journal of Computer Networks and Communications Security, vol 6, No. 3, pp. 49-56, 2018

29. Ali Can Mogol, **Reza Hassanpour**, Kasim Oztoprak, "Real-time 3D hand posture reconstruction using stereo vision", 12th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD), pp. 1926-1932, 2016

30. Serdar F Tasel, **Reza Hassanpour**, Erkan U Mumcuoglu, Guy C Perkins, Maryann Martone, "Automatic detection of mitochondria from electron microscope tomography images: a curve-fitting approach", SPIE Medical Imaging, pp. 903449-903449-8, 2014

31. Behnam Babagholami-Mohamadabadi, Ali Bagheri-Khaligh, **Reza Hassanpour**, "Digital Video Stabilization Using Radon Transform", International Conference on Digital Image Computing Techniques and Applications (DICTA), pp. 1-8, 2012.

32. **Reza Hassanpour**, Asadollah Shahbahrami, Stephan Wong, "Hand Segmentation by Fusing 2D and 3D Data", Second International Conference on Computer Modeling and Simulation ICCMS'10, vol.3 pp. 99-103, 2010.

33. Betul Karaomeroglu, **Reza Hassanpour**, Human Face Identification Using M-PCA Augmented With Gabor Wavelet, WSEAS Transactions on Information Science and Applications 2005

34. **R. Hassanpour**, A. Shahbahrami, S. Wong, Adaptive Gaussian Mixture Model for Skin Color Segmentation, Proceedings of World Academy of Science, Engineering and Technology, Vol. 31, ISSN 1307-6884, pp. 1-6, Vienna, Austria, July 2008

35. **R. Hassanpour**, S. Wong, A. Shahbahrami, Vision-Based Hand Gesture Recognition for Human-Computer Interaction: A Review, IADIS International Conference Interfaces and Human-Computer Interaction 2008, ISBN:978-972-8924-59-1, pp. 125-134, Amsterdam, the Netherlands, July 2008

36. Ahmet Birdal, **Reza Hassanpour**, Region-Based Hand Gesture Recognition, The 16th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG2008), 2008.

37. S.Eş, A.R.Aşkun, **R. Hassanpour**, Spam Mail Filtering using Bayesian Classifier and Heuristics, ICSES 2006 International Conference On Signals And Electronic Systems September 17-20, 2006, ŁÓD´Z , Poland.

38. S.Bolat, A.R.Aşkun, **R. Hassanpour**, D. Demirbulak, A Novel Intelligent and Fast Question Answering System for World Wide Web, 5th International Conference on Education and Information Systems, Technologies and Applications (EISTA 2007), July 12-15, 2007 Orlando, USA

39. Betul Karaomeroglu, **Reza Hassanpour**, Gabor Wavelet-Based PCA for Face Recognition, WSEAS Conference, August 2005. Corfu, Greece

40. **Reza Hassanpour**, Ahmet Birdal, Real-time hand-face tracking using skin color and motion, World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI ´05), Orlando, USA, July 10-13, 2005

41. **Reza Hassanpour** and Volkan Atalay, Delaunay Triangulation based 3D Human Face Modeling from Uncalibrated Images, Proc. of CVPR Workshop on Face Processing in Video, FPIV-04, Washington DC,2004

42. Eylem Karaman and **Reza Hassanpour**, Model-Based Human Face Segmentation using Skin Color, International Conference on Intelligent Knowledge Systems IKS-2004, Assos, Troy, Turkey.

43. Defne Fakili and **Reza Hassanpour**, Comparison of Two Binarisation Methods in Fingerprint Identification, International Conference on Intelligent Knowledge Systems IKS-2004, Assos, Troy, Turkey.

44. Eylem Karaman and **Reza Hassanpour**, Model-Based Human Face Segmentation using Skin Color, 12th Turkish Symposium on Artificial Intelligence and Neural Networks, Canakkale, Turkey, June 2003

45. Betul Karaomeroglu and **Reza Hassanpour**, A Comparative Study of Human Face Identification in Presence of Illumination, Occlusion and Expression, 12th Turkish Symposium on Artificial Intelligence and Neural Networks, Canakkale, Turkey, June 2003.

46. **Reza Hassanpour** and Volkan Atalay, Head Modeling with Camera Auto-calibration and Deformation, 7th International Fall Workshop on Vision, Modeling and Visualization, Erlangen, Germany, 20-22 November 2002, pp.3-11, IOS Press.

47. **Reza Hassanpour** and Volkan Atalay, Camera Auto-Calibration using a Sequence of 2D Images with Small Rotation and Translations, 17th International Symposium on Computer and Information Sciences (ISCIS), Orlando, Florida, USA, October 2002.

48. **Reza Hassanpour** and Volkan Atalay, "3D reconstruction from Uncalibrated 2D images", 11th Turkish Symposium on Artificial Intelligence and Neural Networks, Istanbul, Turkey, June 2002.

Book/ Book Chapter

1. **Reza Hassanpour** (2011) Image Processing Techniques, In Biomedical Engineering in Biomedical Engineering: Healthcare Systems, Technology, and Techniques, Springer.

2. **Reza Hassanpour** (2019) Big Data, A textbook prepared for the "Big Data" graduate course at the IT-Business department of IUBH Applied Science University-Germany

References

1- Prof. Dr. Murat Tanik, Computer Engineering Department, the University of Alabama at Birmingham, Alabama, USA, email: mtanik@uab.edu, Phone: +1-205-934-8440

2- Prof. Dr. Erdogan Dogdu, Department of Computer Science, San Angelo University, Texas, USA, erdogan.dogdu@angelo.edu, Phone: +1-325-486-5444

3- Prof. Dr. Volkan Atalay, Computer Engineering Department, Middle East Technical University, Ankara- Turkey, vatalay@metu.edu.tr, Phone: +90-312-210-5576