## Personal Details

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## Research Interests

My research interests revolve around the various levels of information fusion in machine learning. Much of my recent work has focused on Deep Learning and its role in pattern recognition and biomedical signal and image classification. I have introduced several convolutional neural network architectures, and utilized their multi-level learned features to discriminate patterns with different complexity, including histopathological images of breast cancer, MRI and X-ray images. In addition, I have proposed several systems that employ feature-level and score-level fusion of handcrafted descriptors and automatically learned features for pattern classification, including facial age estimation, skin cancer detection, chronological age estimation from panoramic dental X-ray images, lung cancer detection from CT scans, animal face classification and cardiac arrhythmia classification from ECG signals.

## Educations

- **Ph.D.** (2013-2019) in Computer Engineering, Eastern Mediterranean University, Famagusta, North Cyprus. CGPA 4.0/4.0

    o **Thesis Title**: *Fusion of Hand-crafted Descriptors with CNN-based Features for Facial Age Estimation.* **Supervisor:** Prof. Dr. Önsen Toygar

- **MSc. (**2001-2004) in Computer Engineering, Major: Artificial Intelligence and Robotics, Shiraz University, Shiraz, Iran.

    o **Thesis Title:** "*Texture Analysis and Classification of Sonographic Images*" Grade 3.8/4, September 2005. **Supervisor:** Assoc. Prof. Dr. Hassan Eghbali Jahromi

- **BSc.** (1996-2000) in Hardware Engineering, Shahid Bahonar Kerman University, Kerman, Iran.

    o **Graduation Project:** *"Design & Development Automatic Washing Machine Timer by 8951 Micro Controller ".*

## Teaching / Research Experience

- Assistant Professor in Computer Engineering Department, Antalya Bilim University, Turkey (2019- present)
    o **Taught Courses - Undergraduate Level:** *Embedded Systems, Computer Organization and Architecture, System Programming, Data Structure, Introduction to Image Processing, Object Oriented Programming in JAVA, Advanced Python Programming, Computer Programming II in JAVA*
    o **Taught Courses - Graduate Level**: *Biometrics, Convolutional Neural Networks for Visual Recognitio, Digital Image Processing, Advanced Machine Learning, Applied statistics for data science*

- **Master Thesis Supervision:**
    1. M. Javed, *Breast Cancer Classification Using Deep Neural Network, 2019*
    2. S. Ahed, *Computer Aided Lung Cancer Diagnoses with Deep Learning Algorithms, 2020*
    3. M. Zubair, *Deep Learning Approaches for MRI Image Classifications, 2020*
    4. S. Iqbal, *Skin Cancer Detection using Deep Neural Network, 2020*
    5. M. Zulfiqar, *Multi-class Breast Cancer Classification with Histopathological Images, 2021*
    6. Z. Rehman, *ECG Arrhythmia Classification By Using Convolutional Neural Network , 2021*
    7. R. Sattar, *Automated estimation of chronological age from panoramic dental X-ray images using different machine learning approaches, 2022*
    8. N. Alshaeer, *Skin Cancer Classification CNN versus Traditional Machine Learning Techniques, 2022*
    9. A. Uddin, *Machine Learning Approaches for Prostate Cancer detection from Histopathological images, 2022*
    10. N. Alshaer, *Deep Learning Technique for Early Detection of Lung Cancer. 2024*
    11. S. Nasiri, *ROLE OF MACHINE LEARNING IN IOT SECURITY, 2024*
    12. M. T. Aziz, *Brain Tumor Segmentation with CNN architectures, 2024*

- Research/Teaching Assistant at the Department of Computer Engineering, Eastern Mediterranean University, North Cyprus (2014-2019), with experience in curriculum design, new course material development, grading, laboratory supervision, and guest lecturing.
    - **Lab Instructor** (numbers indicate number of times each course was taught): *Digital Logic Design (7 semesters), Algorithms & Programming (×9), Programming Fundamentals (×6), Foundations of Computer Engineering (×2), Digital Logic Systems (×4), Computer Architecture and Organization (×2), Microprocessor (×6) ,Introduction to Image Processing (×3), introduction to signal processing, Embedded system, Automata Theory (×4), Electronic for Computer Engineers, Data Structure (×2), Principles of Programming Languages, Object Oriented Programming (×2), Operating Systems (×2), Computer Networks, System Programming.*

- Faculty Member in Computer Engineering Department, Azad University, Iran (2004-2012)
    - **Courses Taught:** *Fundamentals of Programming in C (×15), Assembly Language(×18), Digital Logic Design(×10), Computer Architecture(×10), Microprocessor(×10), Introduction to C++(×8), Data Structure(×6), Analysis of Algorithms(×2), Artificial Intelligence(×2), Computer Graphic(×2), Special topics in Computer engineering(×2).*

- Visiting lecturer at Payame Noor University- Lamerd Branch (2004-2007).
    - **Courses Taught:** *8086 Assembly Language (×6), Digital logic (×6), Computer Architecture (×4), Microprocessor (×4), C++ (×4), Data structure (×2), Artificial Intelligence (×2), Computer Graphic (×2), Computer Networks (×2)*

- Visiting lecturer at Azad University- Shiraz Branch (2007-2012).
    - **Courses Taught:** *Digital Logic Design (×4), Computer Architecture (×4).*

- Supervised more than 150 students in the course "Final Project" at different branches of Azad University.

- Head of research at the Laboratory of Advanced Robotics, Marvdasht University (2004-2012).
- Member of the Research and Development (R&D) Department at Shiraz University (2004-2010).
- Head of the Computer Centre at Marvdasht University (2004-2007).
- Teaching Assistant in Computer Engineering Department, Shiraz University (2001-2004).

## Honors and Distinctions

- Awarded EMU 100% postgraduate scholarship for Ph.D. study.
- Placed on the high honor lists of all the academic semesters during Ph.D. study.
- Placed on the honors lists of all the academic semesters of graduate study.
- Ranked 525 (top 1%) among more than 550,000 participants in national university entrance exam in Mathematics-Physics major, 1997.
- 100% scholarship for undergraduate study, 1997-2002.
- Ranked 75(top 1%) among more than 10,000 competitors in Iranian nationwide M.Sc. University entrance exam in Computer Engineering, 2002.
- 100% scholarship for graduate study, 2002-2005.
- CEO of Milka Control, private company, Shiraz, Iran, 2002- present
- Team Leader in RoboCup Competition – German Open 2010, 3D-Socer Simulation, Germany 2010.
- Team Leader in RoboCup 2009 Virtual Robot Rescue Competition, Graz, Austria 2009.
- Design and Implementation of a fuzzy controller for washing machine at Milka Control Co., Granted by Azmayesh Company, 2007
- Design and Implementation of a 3-color moving message using an 8951 Microcontroller at Milka Control Co., Granted by Azmayesh Company, 2006
- Design and Implementation of several intelligent controller for refrigerator by 8951 Microcontroller, at Milka Control Co., Granted by Azmayesh Company, 2003-2009
- Design and Implementation of a complete Microcontroller Training System at Milka Control Co., Granted by Shiraz University, 2005
- Design and Implementation of an Automatic timer for Dishwashing machine by 89c51 Microcontroller at Milka Control Co., Granted by Azmayesh Company, 2003.
- Design and Implementation of an Automatic timer for washing machine by 89c51 Microcontroller as B.Sc project at Kerman University, Granted by Azmayesh Company, 2001.

## Publications

- Shahram Taheri, Z. Golrizkhatami, A. A. Basabrain and M. S. Hazzazi, (2024), "A Comprehensive Study on Classification of Breast Cancer Histopathological Images: Binary Versus Multi-Category and Magnification-Specific versus Magnification-Independent", IEEE Access, vol. 12, pp. 50431-50443, DOI: 10.1109/ACCESS.2024.3386355.

- Shahram Taheri and Zahra Golrizkhatami, Magnification-Specific and Magnification Independent Classification of Breast Cancer Histopathological Image using Deep Learning Approaches, Signal, Image and Video Processing, 2023.

- MB Sivri, S Taheri, Ü Yağci, Z Golrizkhatami, (2024), Dental age estimation: A comparative study of convolutional neural network and Demirjian's method. Journal of Forensic and Legal Medicine, 103, 102679.

- Shahram Taheri and Önsen Toygar, On the Use of DAG-CNN Architecture for Age Estimation with Multi-stage Features Fusion, Neurocomputing, 2018. DOI: 10.1016/j.neucom.2018.10.071

- Shahram Taheri and Önsen Toygar, Animal Classification Using Facial Images with Score-level Fusion, IET Computer Vision, 2018, Volume 12, Issue 5, 2018 , p. 679 - 685,

- Shahram Taheri and Önsen Toygar, Multi-Stage Age Estimation Using Two Level Fusion of Handcrafted and Learned Features on Facial Images, IET Biometrics, 2018. DOI: 10.1049/iet-bmt.2018.5141.

- Shahram Taheri and Önsen Toygar, Integrating Feature Extractors for the Estimation of Human Facial Age, Applied Artificial Intelligence Journal, Volume 33, 2019- Issue 5, pp. 379-398.

- Zahra Golrizkhatami, Shahram Taheri and Adnan Acan, Multi-scale features for heartbeat classification using directed acyclic graph CNN, Applied Artificial Intelligence journal, 2018. https://doi.org/10.1080/08839514.2018.1501910.

- Shahram Taheri and Zahra Golrizkhatami, Breast Cancer Histopathology Image Classification: Binary Versus Multi-Category and Magnification-Specific Versus Magnification-Independent, (Under Review)

- Shahram Taheri, Zahra Golrizkhatami and Onsen Toygar, Classification of Animal Faces Using a Novel DAG-CNN Architecture, International Conference on Advanced Engineering, Technology and Applications (ICAETA-2021), Istanbul, Turkey

- Dehzangi, Omid, Mansoor Zolghadri Jahromi, and Shahram Taheri. "High performance classification of two imagery tasks in the cue-based brain computer interface." IAPR International Workshop on Pattern Recognition in Bioinformatics. Springer, Berlin, Heidelberg, 2007.

- Dehzangi, Omid, Mansoor Zolghadri Jahromi, and Shahram Taheri. "Efficient fuzzy rule generation: A new approach using data mining principles and rule weighting." Fuzzy Systems and Knowledge Discovery (FSKD). Fourth International Conference. Vol. 2. IEEE, 2007.

- Dehzangi, Omid, Mansoor Zolghadri Jahromi, and Shahram Taheri. "An efficient nearest neighbor classifier using an adaptive distance measure." International Conference on Computer Analysis of Images and Patterns. Springer, Berlin, Heidelberg, 2007.

## *Computer Skills*

- Programming Languages: Python, C, C++, Matlab, Java, C#, JavaScript, SQL, 80x86 Assembly, MIPS

- Deep Learning Platforms: TensorFlow, Keras, PyTorch

- Biomedical Image Analysis Tools: Apeer, 3D Slicer

- Micro Controller: MCS-51 Hardware, Software (Assembly, C)

- Industrial Software: Quartus II, Proteus (ISIS), Max-Plus II, QtSpim, MARS.

- Operating Systems: MS. Windows, Linux (Ubuntu, Fedora)