

Mohammadhossein Salari

Eye Tracking Researcher

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Note: Everything in this color is a link
CV Updated in July 2026

Location: Joensuu, Finland

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[Google Scholar](#)

Summary

My background spans electrical engineering, artificial intelligence, and eye-tracking research. As an electrical engineer, I led R&D teams and shipped embedded and IoT products at startups. During my master's in AI, I worked on remote sensing, deep learning, and computer vision. My PhD focuses on the pupil-size artifact in video-based eye trackers, and besides publishing papers I have developed and released multiple open-source tools related to my research. I enjoy working across hardware and software, and I want to put that toward building better eye-tracking algorithms and analysis tools.

Skills

Key Skills:	Eye-tracking, Real-time embedded hardware prototyping and integration, Signal acquisition and processing, Machine Learning and Deep Learning, Data analysis
Programming	Python, C, C++, Golang, MATLAB
AI & ML	PyTorch, TensorFlow/Keras, scikit-learn, Pandas, NumPy, OpenCV
Libraries	Beautiful Soup, Scrapy, Selenium, Matplotlib, Plotly, SQLite, Elasticsearch
Web	CSS, HTML, Flask, Django
Electrical Engineering	ARM Cortex-M3 family (STM32x), ESP8266, ESP32, Arduino, AVR (Atmega & Attiny family), STM8, Raspberry Pi, EaglePCB, LoRaWAN
Other	Git, Linux, LaTeX

Work Experience

Feb 2019	CTO and Co-Founder, <i>Quarkomm Startup</i> , Tehran, Iran
Feb 2021	Co-founded Quarkomm to develop prototypes based on Narrowband IoT (NB-IoT) technology. Led the creation of various devices, including an infrared optical probe for utility meter reading, a LoRaWAN-based smart streetlight, and an image processing-based reverse vending machine, among others.
Aug 2018	Head of R&D Department, <i>SEP Co.</i> , Tehran, Iran
Oct 2019	Led development of infrastructure for smart meters and data transmission over a LoRaWAN network. Designed a general-purpose firmware platform for low-power, remote measurement devices.
Apr 2016	R&D Electrical Engineer, <i>Abr Network Startup</i> , Tehran, Iran
Jan 2017	Developed a user-friendly educational system for teaching electronics to children. Built two prototype sets: one based on STM32 microcontrollers with CAN connectivity, and another using ESP8266 with wireless communication.

Education

Jun 2023	Doctoral Researcher, <i>University of Eastern Finland</i> , Joensuu, Finland
Present	Computer Science MSCA <i>Eyes for Information, Communication, and Understanding (Eyes4ICU)</i> project.

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Thesis Title: DC 3: Effective and Robust Predictive Gaze-Based Models in the Wild.

Research focus: My work has converged on the pupil-size artifact (PSA) — the apparent gaze shift that video-based eye trackers report when pupil size changes even though the eye does not move — with the long-term goal of building a PSA-free eye tracker.

Sep 2018

Master of Science, Islamic Azad University, Shiraz Branch, Shiraz, Iran

Sep 2021

Artificial Intelligence and Robotics

Rank: 1st in the class, **GPA:** 19.79/20

Thesis Title: Automated detection of dam locations in satellite imagery and monitoring of reservoir changes using deep neural networks.

Highlights: Created custom datasets for training and evaluation; applied deep learning-based object detection methods (YOLOv5, Faster R-CNN, RetinaNet) and image classification models (VGG, ResNet, DenseNet) for dam detection; implemented classical image processing techniques for reservoir change monitoring.

Sep 2011

Bachelor of Science, Shiraz University of Technology, Shiraz, Iran

Jul 2016

Electrical Engineering

GPA: 14.37/20

Final project: Reverse vending machine using ARM Cortex-M microcontroller and barcode reader.

Teaching Experience

2023

Teaching Assistant, "Eye Tracking" (graduate course), School of Computing, University of Eastern Finland

Present

Autumn 2023, 2024, and 2025

Spring 2014

Teaching Assistant, "Microprocessors" (undergraduate), Department of Electrical and Electronics Engineering, Shiraz University of Technology

Fall 2013

Teaching Assistant, "Microcontrollers" (undergraduate, two course sections), Department of Electrical and Electronics Engineering, Shiraz University of Technology

Summer 2013

Instructor, "AVR Microcontrollers" summer course, Summer School, Shiraz University of Technology

Publications

2026

Salari, MH., Nyström, M., Niehorster, DC., & Bednarik, R. PyeLink and SyeLink: Open-source Python Tools for Low-level EyeLink Experiment Control and Data Parsing. *Proceedings of the 2026 Symposium on Eye Tracking Research and Applications (ETRA)*.

2026

Salari, MH., Trukša, R., & Bednarik, R. How Close Can You Go? Minimum Eye-to-Screen Distance for EyeLink 1000 Plus. *Proceedings of the 2026 Symposium on Eye Tracking Research and Applications (ETRA)*.

2026

Salari, MH., Niehorster, DC., Hansen, DW., & Bednarik, R. PyEtSimul: An Open-Source Python Framework for Eye-Tracking Simulation. *Proceedings of the ACM on Human-Computer Interaction*, 10(3).

2025

Salari, MH., Niehorster, DC., Nyström, M., & Bednarik, R. The Effect of Pupil Size on Data Quality in Head-Mounted Eye Trackers. *Behavior Research Methods*, 58(1), 17.

2024

Salari, MH., & Bednarik, R. Investigating the Impact of Illumination Change on the Accuracy of Head-Mounted Eye Trackers: A Protocol and Initial Results. *9th International Workshop on Pervasive Eye Tracking and Mobile Eye-Based Interaction (PETMEI)*.

2024

Salari, MH., Shayegan, MA., & Faraji, F. Automatic Location of Caravanserais in Satellite Images Using Image Processing Techniques Based on Deep Learning. *Journal of Circuits, Data and System Analysis (JCDSA)*.

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2024

Salari, MH., & Shayegan, MA. Improving the detection of spam in Persian SMS by providing a comprehensive database. Paper presented at the *First National Conference Data Analysis*, Yasuj.

Work-in-Progress

Salari, MH., et al. The Mechanism Behind the Pupil Size Artifact (PSA) in Eye Tracking.

Puurtinen, M., **Salari, MH.**, Lähteenmäki, I., Löfström, J., & Bednarik, R. Capturing Affective Encounters in a History Museum: Eye-Tracking and Self-Reports as Methods of Analysing Visitor's Distancing and Embracing. *Visitor Studies*.

Itkonen, M., Moustafa, R., **Salari, MH.**, & Yamauchi, S. Speed-Dependent Organization of Eye-Hand Coordination. *Journal of Neurophysiology*.

Selected Open-Source Tools (Developer& Maintainer)



Cheshm

A cross-platform C++ library with Python bindings packaging pupil, glint, and limbus detectors (Starburst, ExCuSe, ElSe, PuRe, and more).



EyE Annotation Tool

A Qt-based desktop tool for annotating pupil, iris, eyelid, and glints in eye images, with built-in auto-detectors.



PyEtSimul

A Python framework for simulating video-based eye trackers by geometrically modeling eyes, cameras, and light sources.



Zarafe

A unified video annotation tool for time-marking events across different head-mounted eye trackers.



PyLink and SyeLink

Python tools for running EyeLink 1000 Plus experiments and parsing the resulting data.



Davat (دوات)

A Python library for normalizing and cleaning Persian text for NLP applications.

Awards and Honors

Jun 2026

Honourable Mention – Late-Breaking Work Paper Award, ETRA 2026 (ACM Symposium on Eye Tracking Research & Applications), Marrakech, Morocco

For the paper "How Close Can You Go? Minimum Eye-to-Screen Distance for EyeLink 1000 Plus" — **Salari, MH.**, Trukša, R., & Bednarik, R.

Languages

Farsi: Native

English: Fluent

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