

# MEHRAN SHOVKATI

Research Scholar - RS and Machine Learning

## SUMMARY

Motivated and detail-oriented PhD student specialising in machine learning for remote sensing and image analysis. Building on a strong foundation in remote sensing technology and statistical modelling, I am committed to advancing innovative methods for tackling environmental and geographical challenges, with a particular focus on addressing issues related to climate change.

## EDUCATION

**PhD - STIET - Machine Learning for Remote Sensing**  
**DITEN department - University of Genoa (Italy)**

2024 - ongoing

Working on CCI+ - HRLC (ESA) project for satellite image classification using Machine Learning and Deep Learning techniques.

**MSc.- Engineering for Natural Risk Management**  
**DITEN department - University of Genoa (Italy)**

2021 - 2024

Passed with GPA 110/110 e lode: Thesis: Potential Hazards of AEMWE Electrode's Material (Ni and Co metals exposure assessment).

**BSc. - Occupational Health and Safety Engineering**  
**Shahid Beheshti University of Medical Sciences - Tehran (Iran)**

2009 - 2013

Passed with GPA 3.24/4: Project:OH&S Risks of PAK Dairy Co.

Teaching Experience

**Teaching lab. Exercises in the Internet and Multimedia Engineering program, Genoa.**  
**Tool: Google Colab - Python**

2026

Assisting students in achieving proficiency with working with machine learning projects for classification and regression.

**Teaching lab. Exercises in engineering for natural risk management master's program, Savona.**  
**Tool: MultiSpec software package**

2025

Assisting students in achieving proficiency with multisensor images, photo-interpretation, classification tasks, and image analysis for the remote sensing course.

## PROJECTS

**Siamese MLP model for data fusion and image classification**  
**Tool: Python**

2025

SAR and Optical data fusion using Siamese MLP model to classify satellite images in various ecoregions (Africa, Siberia, and Amazonia).

## SKILLS

### TECHNICAL SKILLS

Machine Learning 5+ yrs

Statistical Models 5+ yrs

Remote Sensing Tech. 5+ yrs

### SOFTWARES & PL

Python 5+ yrs

MATLAB 4+ yrs

R 4+ yrs

QGIS 4+ yrs

MS Office 5+ yrs

### ANALYTICAL SKILLS

Data Analysis 5+ yrs

Modeling & Simulation 5+ yrs

# ACHIEVEMENTS/ CERTIFICATIONS

## IELTS Academic

### 7.5 out of 9 Band

A certificate issued by the International Development Program (IDP), Australia, to prove English language proficiency for non-native **English** language speakers.

## Python

### 100%

Two certificates issued by Udemy and Coursera (University of Michigan) specialisation to prove understanding of **Python** programming.

## MATLAB

### 100%

A certificate issued by Coursera (Vanderbilt University) for the complete course in **MATLAB** programming.

## IBM AI engineering

### 100%

A certificate issued by Coursera by IBM for the complete course in **AI Engineering**.

## IBM Machine Learning

### 100%

A certificate issued by Coursera by IBM for the complete course in **Machine Learning**.

## ML Specialization

### 100%

A certificate issued by Coursera (Stanford University) for the complete course in **Machine Learning and Deep Learning**.

## PGM models for spatial regularization

**Tool: Python**

2024-2025

Image segmentation using MRF and CRF models.

## Monte Carlo simulation for human health risk of metal particles

2024

**Tool: Python**

The Monte Carlo simulation for occupational exposure to metal nanoparticles. Life cycle assessment method for evaluating the exposure and emission of metal particles in water electrolysis technology.

## Human health risk evaluation for H2SO4 plant

2023

**Tool: Python**

Gaussian Plume model for hazard quotient and lifetime cancer risks of the public population near the plant. Both environmental and occupational exposure evaluation.

## Cellular Automata Wildfire Risk Evaluation

2023

**Tool: Python**

Employment of various scenarios of the Cellular Automata method on the Ligurian region forest to evaluate the sensitivity analysis of various parameters on the probabilistic fire spread speed.

# COURSEWORKS

## Environmental projects with the aim of chemical hazards evaluation in natural and technological settings.

2021-2024

**Tool: Python-MATLAB-Lab. Experiment**

Employment simulation applications with real data to observe the quantitative risks.

## Occupational health and safety projects with the aim of toxicology, occupational epidemiology, and chemical and physical hazards evaluation.

2009-2021

**Tool: Lab. Analysis-Active Monitoring**

Various projects in industries and public environments for evaluating occupational setting hazards, both chemical and physical.

# PUBLICATIONS

## A Neural and Probabilistic Graphical Approach to Decision Fusion for Multitemporal Land Cover Mapping in Sahel

Conference - SPIE

**SPIE Sensors and Imaging Conference 2026**

Status: Accepted

## Heat Stress assessment according to the wet-bulb globe temperature (WBGT) index among workers of a steel mill in 2014

Journal

**Journal of Occupational Health and Epidemiology (ISSN: 2251-8096) Vol 6, Issue 3, 2017**

Status: Accepted and Published

## Arc GIS Mapping

100%

A certificate issued by Coursera (University of Toronto) for the complete course in **Arc GIS mapping**.

## Safety Professional-RSP

100%

A certificate issued by the national OH&S official office in Italy to prove skills in detecting occupational health and safety challenges.

## Italian B1

100%

A certificate issued by the University of Genoa for **Italian** proficiency.

## PGM Specialization

100%

A certificate issued by Coursera (Stanford University) for the complete course in **Probabilistic Graphical Models**.

# WORK EXPERIENCE

## Health, Safety, and Environment Project Consultant SIGE srl., Genoa (Italy)

May 24 - Oct 2024

Consulting on process safety and new technologies risk control methods such as fuel cells, hydrogen refueling, and refineries to provide safety and reliability from an engineering perspective. Simulation of hazardous scenarios with GIS, CFD models, and softwares to integrate safety policies with regulated norms. Employment of main statistical models in modeling such as Gaussian plume.

## Quality, Health, Safety, and Environment Project Manager KTE Co, Tehran (Iran)

Jan 21 - Oct 21

Established and implemented a new safety management system model for mining projects, which resulted in improved safety audit scores. Led a 4M dollars HSE consultation project for POGC(oil & gas), which involved conducting risk analysis, proposing mitigation strategies, and providing PPE.

## Health, Safety, and Environment Training Manager HSE Arya Co, Tehran (Iran)

Oct 19 - Feb 21

Provided consultation and training to safety professionals in NEBOSH, IOSH, and IEMA certification courses, resulting in a 90% increase in candidates' certification rates over two years. Led the ISO 45001, 14001, and 9001 certification process for HSE Arya in 2020, successfully achieving integrated certification in the first audit.

## Occupational Health and Safety Engineer Various Projects

March 14 - Sep 19

Implementation of national and international environmental health and safety techniques to provide a safer environment.

# WORKSHOPS & CONFERENCES

## Disaster Risk Management Online Training Series

Sep-Dec 2022

Conducted by Coventry University, CONRIS network, and the DRMKC of the European Commission.

# EXTRACURRICULAR

- ECPLab member for working on Electrolysis Process Risks.
- Member of quality assurance (QA) committee of ENRM course at UNIGE.
- Student representative at "Consiglio del Corso di Studi" (2023-March 2024)
- Student representative in the Dept. Council of DITEN (2023-March 2024)

# REFERENCES

- Gabriele Moser, Full Professor, University of Genoa.
- Sebastiano B. Serpico, Full Professor, University of Genoa.
- Fabrizio Bracco, Associate Professor, University of Genoa.