Ali Abedi

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Personal Information

- Nationality: Iranian
- Date of birth: Nov. 22, 1997
- Current place: Tehran, Iran
- Marital status: Single

Research Interests

- Structural Health Monitoring (SHM)
- Damage detection of infrastructures using AI
- Vision-based SHM
- Signal & image processing
- Artificial-neural-network-based surrogate models for SHM
- Optimization of structures

Education

- **Master of Science, Structural Engineering**

Iran University of Science & Technology (IUST) (QS ranking) 2021-2024 | Tehran, Iran
CGPA: 17.12/20 (3.43/4)
Master's thesis: Damage detection of civil structures using deep learning and computer vision techniques
Supervisor: Prof. Gholamreza Ghodrati Amiri

- **Bachelor of Science, Civil Engineering**

Urmia University (UU) (US news ranking) 2016-2021 | Urmia, Iran
CGPA: 15.48/20 (3.1/4)

Technical Skills

- Design of general concrete and steel Structures based on Major Codes (ACI, AISC, ASCE…)
- Work with software: MATLAB, python (Keras & Pytorch), CSI (ETABS, SAFE, SAP2000), Abaqus CAE, AUTOCAD, Adobe Photoshop, Microsoft OFFICE (Word, Excel, PowerPoint)
- Worked on some benchmark SHM datasets, such as the Tianjin Yonghe Bridge, Tesung Bridge, the Qatar University Grandstand Simulator, the Z24 Bridge, and the yellow frame (UBC).

Professional Experience

Lectures and Presentations

- Coded various programs for optimal finite element analysis of structures
- Develop a range of deep learning models, leveraging both CNNs and Transformers

- Steel railway bridge fatigue damage detection using machine learning and influence of modeling uncertainty
- Introduction to rubber base isolators
- Executive member of the 13th International congress of civil engineering
- The effect of zero-dimensional nanoparticles on the durability of cement composites exposed to chloride

Working Experience

- 2 years of internship in Shahr va Omran company 2019-2021 | Urmia, Iran
- Design 10+ concrete structures and 1 steel structure (including hospital, school, airport, villa & free span building)
- 100+ hours of internship in a construction workshop 2022-2023 | Tehran, Iran

HONORS AND AWARDS

- Accepted to NODET high school (National Organization for exceptional talents)
- Ranked as the top 1% among 10,000+ participants in Master's entrance exam
- Winner of the second exhibition of recycling ideas and waste reduction from the source, Urmia University
- Led the school soccer team as captain in provincial-level soccer matches
- Reviewer at Expert Systems with Applications

LANGUAGES

- **Azerbaijani**: Mother tongue
- **Persian:** Fluent
- **English:** Proficient (C1) (IELTS overall:7 L:7.5, R:6.5, S:6.5, W:6.5) 2025 | Tehran, Iran
- **Turkish:** Conversational

REFERENCE

- Professor Gholamreza Ghodrati Amiri, professor, department of civil engineering, IUST, Tehran, Iran
  E-mail: ghodrati@iust.ac.ir

PUBLICATIONS

- **Abedi A**, Ghodrati Amiri G, Avci O. Advanced anomaly detection in structural health monitoring data using Vision Transformer and multi-domain feature fusion. *Structural Health Monitoring*. [Q1; IF:5.7; Under review]
- Fadaei A, **Abedi A**, Ghodrati Amiri G. Anomaly detection approach for vibration-based looseness identification in bolted connections using hybrid unsupervised deep learning and isolation forest. *Expert Systems with Applications*. [Q1; IF 7.5; Under review].
- **Abedi A**, Shabani Rad A, Ghodrati Amiri G. Comparative study on damage detection for plate structures using Chaotic-TLBO with multiple objective functions. *Journal of Rehabilitation in Civil Engineering*. [Q3; Accepted].

- Ghodrati Amiri G, Shabani A, **Abedi A**. Comparative Study of Four Objective Functions for Bridge Damage Detection Using PSO Algorithm: Case of Two Bridges https://civilica.com/doc/2100297/ & https://civilica.com/doc/2100296
- Abedi M, **Abedi A**, Hosseinzadeh AZ, Ghodrati Amiri G. Structural damage detection using frequency-wise repurposed modal deflections and hybrid GWO-TS algorithm (In progress)