

# Ali Abedi

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## PERSONAL INFORMATION

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



## RESEARCH INTERESTS

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- 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

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- **Master of Science, Structural Engineering**

Iran University of Science & Technology (IUST) ([QS ranking](#))

2021-2024 | Tehran, Iran

CGPA: 17.12/20 (3.91/4)

**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 (3.51/4)

## TECHNICAL SKILLS

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- 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

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### 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

- Structural designer 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

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- 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 Advanced Engineering Informatics ([view certificate](#))

## LANGUAGES

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- **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

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

## PUBLICATIONS

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- **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., Michele C.D. 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; <https://doi.org/10.22075/jrce.2025.2169> ].

- 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 A.Z., Ghodrati Amiri G. Structural damage detection using frequency-wise repurposed modal deflections and hybrid GWO-TS algorithm (In progress)