Ava Khajeian

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Researchgate: https://www.researchgate.net/profile/Ava-Khajeian

Location: Hamedan, Iran

Education

2018-Present **PhD Student, Mechanical Engineering**, Applied Design, Solid Mechanics, Department of Mechanical Engineering, Bu-Ali Sina University, Hamedan, Iran

- **Thesis Title:** A study on the effects of different residual stresses fields on corrosion fatigue behaviour
- **Taught Courses:** Finite element method2, Theory of plates, Plasticity, Metal forming, Advanced mechanics of composite materials

2015-2018 **MSc, Mechanical Engineering,** Applied Design, Department of Mechanical Engineering, Bu-Ali Sina University, Hamedan, Iran

- **Dissertation Title:** A study on the effect of shot peening on redistribution of welding residual stresses
- **Taught Courses:** Experimental stress analysis1, Mechanical behaviour of materials, Continuum mechanics 1, Theory of elasticity1, Fatigue and fracture mechanics, Finite element method1, Advanced numerical methods, Advanced engineering mathematics1
- **1st Class** among all Master's students of Mechanical Engineering, Applied design in 2018

2011-2015 **BSc**, **Mechanical Engineering**, Department of Mechanical Engineering, Bu-Ali Sina University, Hamedan, Iran

- **Final Project:** Simulation of crack propagation in presence of residual stresses
- **Taught Courses:** Many courses on both solid and fluid mechanics

- **1st Class** among all Bachelor's students of Mechanical Engineering in 2015

Skills

- ***Knowledge in using Finite Element Method for stress analysis***
    1. *Mechanical processes and phenomena:* simulation of conventional shot peening with random positioning of shots and analysing its induced residual stress field, simulation of buckling of plates without and in the presence of residual stresses using ABAQUS FE software
    2. *Thermo-mechanical processes:* simulation of welding and quench processes and analysing their temperature and stress distribution using ABAQUS FE software
    3. *Fracture mechanics:* Simulation of a single crack propagation using ABAQUS FE software
    4. *Fatigue and corrosion fatigue:* Predicting fatigue and corrosion fatigue life with continuum damage mechanics approach (CDM) using ABAQUS FE software
- ***Knowledge in stress analysis***
- ***Advanced knowledge in conventional shot peening process***
- ***Computing***
    1. Advanced user knowledge in ABAQUS FE software
    2. Advanced user knowledge in AutoCAD software
    3. Advanced user knowledge in word processing MS Office
    4. Advanced user knowledge in writing Scripts in ABAQUS software with Python programming language
    5. User knowledge in writing Subroutines in ABAQUS software (DFLUX, USDFLD, VUSDFLD, UMAT, SIGINI)
    6. User knowledge in other CAD software: Solidworks, Mechanical Desktop
    7. User knowledge in MATLAB programming
    8. User knowledge in plastic injection moulding software Moldflow

- ***Other skills and qualifications***

    1. Knowledge in some mechanical surface treatment techniques (Ultrasonic shot peening, Laser shock peening)
    2. Knowledge in developing Cellular Automaton (CA) models for simulating corrosion
    3. Knowledge in Selective Laser Melting process (SLM) and its simulation
    4. Knowledge in getting journal index in scientific databases (e.g. Web of Science, Scopus, DOAJ)
    5. Knowledge in piping principals and design
    6. Knowledge in plastic injection moulding process

Publications

***Journal papers*:**

1. **Khajeian, A**., Mahmoudi, A. H., & Seifi, R. (2024). An approach to predicting corrosion fatigue for marine applications. *International Journal of Fatigue*, *179*, 108030.
2. Mahmoudi, A. H., Jamali, A. M., Salahi, F., & **Khajeian, A**. (2021). Effects of water jet peening on residual stresses, roughness, and fatigue. *Surface Engineering*, *37*(8), 972-981.
3. **Khajeian, A**., Mahmoudi, A. H., and Mehmanparast, A. (2019). Shot peening effects on residual stresses redistribution of offshore wind monopile multi-pass weldments. *Marine Structures*, *66*, 106-120.

Conference papers:

1. **Khajeian, A**., Mahmoudi, A. H. A numerical study on the effect of quench heat treatment technique on fatigue life of a flat specimen. *26th Annual International Conference of Iranian society of Mechanical Engineers (ISME), Semnan, Iran, 2018. (In Farsi)*

Teaching and scientific experiences

1. Undertaking technical drawing courses (1 and 2) for undergraduates in Hamedan University of Technology (2019-Present)
2. Reviewer: Journal of Stress Analysis (2020)
3. Helping master's and bachelor's students in their research projects (2015-Present)

Research interests

Life extension, Structural integrity, Finite element analysis, Residual stresses, Damage mechanics, Mechanical surface treatment techniques

Language

English (Fluent/C1)