

Mohammad Taheripour

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Education

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|---|---|
| M.Sc in Aeronautic Structural Engineering <i>K.N.Toosi University of Technology (Ranking)</i> Thesis: <i>Optimization of the percentage and distribution of porosity in functionally graded (FG) porous beam in order to increase the critical buckling load.</i> Supervisor: <i>Prof. Mojtaba Farrokh</i> Overall GPA: 3.54/4.00 (17.02/20.00) | Tehran- Iran 2016-2019 |
| B.Sc in Aerospace Engineering <i>Science and Research Branch IA University</i> Overall GPA: 3.60/4.00 (17.25/20.00) | Tehran-Iran 2012-2016 |

Scientific Papers

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- M. Farrokh, M. Taheripour, E. Carrera, "Optimum distribution of materials for functionally graded rectangular plates considering thermal buckling", Composite Structures, Volume 289,2022.
<https://doi.org/10.1016/j.compstruct.2022.115401>
 - M. Farrokh, M. Taheripour, "Optimization of porosity distribution of FGP beams considering buckling strength", Structural Engineering and Mechanics, Volume 79,2021.
<https://doi.org/10.12989/sem.2021.79.6.711>

Awards & Honors

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|---------------------------------|--|-------------|
| Highest Overall Ranking | M.Sc program in Aerospace Engineering at KNTU | 2019 |
| Full Tuition Scholarship | M.Sc program in Aerospace Engineering at KNTU | 2016 |
| Highest Overall Ranking | B.Sc program in in Aerospace Engineering at SRBIAU | 2016 |

Research Interests

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- Finite Element Modelling
 - Structural Optimization
 - Composite Structure Design
 - Thermal Stress Analysis
 - Plate and Shell Buckling Analysis
 - Functionally Graded Materials

Teaching Experience

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|---|-----------------------------------|
| Finite Elements Methods (Teaching Assistant) <i>K.N.Toosi University of Technology</i> <ul style="list-style-type: none">• Lecturer: <i>Prof. Mojtaba Farrokh</i> | Tehran-Iran 2018 |
| Flight Mechanics (Teaching Assistant) <i>Science and Research Branch IA University</i> <ul style="list-style-type: none">• Lecturer: <i>Dr. Farshad Pazooki</i> | Tehran-Iran 2015 |

Academic Projects

Finite Element Analysis Project - Hollow Plate Analysis with Python and ABAQUS

**KNT University
2017**

Supervisor: Prof. M. Farrokh

- Executed a project within the framework of the Finite Element course, focusing on the analysis of a plane stress/strain hollow plate featuring a central circular hole. The project was realized through Python scripting, utilizing rectangular isoparametric elements for accurate analysis. The Abaqus-generated mesh, encompassing node coordinates, element connectivity, and boundary conditions, was employed through a text file format. The plate, subjected to tension forces, underwent stress and strain analysis within each element, with the obtained results subsequently validated against Abaqus simulations.

Finite Element Analysis Project - 2D Truss Analysis with Python

**KNT University
2017**

Supervisor: Prof. M. Farrokh

- Undertook a project as part of the Finite Element course during the MSc program, focusing on developing a Python script for the analysis of arbitrary 2D truss structures. The project involved processing input data from text files, containing node coordinates, element numbers, section areas, applied forces, and node movement capabilities, all presented in a specific format. Through the script, the analysis encompassed the calculation of forces within each truss element, taking applied forces into account.

Composite Analysis Script Development

**KNT University
2017**

Supervisor: Prof. M. Zakeri

- Undertook a substantial project involving the development of a MATLAB script for the comprehensive analysis of composite plies and laminates. This interactive program was designed to acquire user-input information, including composite material properties, fiber orientation, and laminate configuration. The script empowered users to define external forces or moments, facilitating stress and strain analysis across layers. Furthermore, the program featured the capability to anticipate fracture modes within the composite structure, encompassing phenomena like shear debonding, matrix cracking, fiber breakage, and fiber buckling.

Aircraft Design Project - Amphibious Firefighter

**SRBIA University
2014**

Supervisor: Prof. F. Pazooki

- Participated in a comprehensive aircraft design project during the BSc Aerospace Engineering program, focusing on the creation of an amphibious firefighting aircraft. Held a prominent role as the head of designers for the structural design team, while also contributing to the conceptual design group. The project followed methodologies presented in Roskam's aircraft design book, resulting in the development of a detailed wooden scaled model of the final aircraft design. Employed SolidWorks software to execute aircraft configuration and structural component design. The project culminated with a conclusive presentation that highlighted the innovative solutions devised throughout the design process.

Work Experience

Product Designer and R&D (freelancer)

**Tehran-Iran
2021-Present**

Tentamus Innovation Hub, Tentamus - Bremen, Germany

- Leveraging my expertise in Solidworks, I conceptualized and designed a cutting-edge Colony Counter device for laboratory use. My role extended beyond the design phase as I translated the design into reality by utilizing a 3D printer to create a functional prototype. This project highlighted my skills in 3D modeling, rapid prototyping, and attention to detail.
- Taking innovation a step further, I embarked on the development of an automatic Colony Counter. This advanced system was designed to efficiently count colonies across a rack of Petri dishes. I integrated automation principles with my engineering acumen, resulting in a solution that enhances accuracy, saves time, and increases overall lab productivity.

- Addressing a critical need within BAV labs, I conceptualized and executed the design and construction of a sophisticated Photo Station. With the capability to capture product pack images from six different angles, this station significantly improved quality control and documentation processes. This project underscored my ability to align engineering with practical applications, effectively contributing to operational efficiency.

CAD Designer- Drafter

Nimetal Industrial Unit

Tehran-Iran
2018-2020

- Engineered an innovative solution for mechanical ceiling access doors within a luxury villa complex (Lavasan-Tehran), encompassing 260 villas. The doors featured automated remote-controlled opening mechanisms and a specialized hinge system to ensure smooth door rotation without compromising plastering and ceiling adornments.
- Produced comprehensive shop drawings for over 30 steel-based outdoor and indoor swimming pools and jacuzzi tubs, integral to the Lavasan-Tehran villa complex construction. The detailed drawings facilitated accurate execution within the project’s scope of 260 luxurious villas.

Product Designer and Teacher

GAMA Group (self-employed)

Tehran-Iran
2014-2018

- Designed a comprehensive educational kit aimed at engaging students in aerospace, robotics, and mechanics concepts through hands-on learning. The kit includes a Space Shuttle model that enables students to explore space shuttle dynamics and performance by constructing a wooden replica. Additionally, the Tower Crane kit provides insights into the functionality of cranes while offering an enjoyable building experience, fostering practical understanding.
- Developed a series of interactive educational booklets tailored for students participating in extracurricular activities within schools. These booklets cover aerospace, robotics, and mechanics topics, providing accessible explanations and engaging activities. By presenting complex concepts in a student-friendly manner, the booklets facilitate a deeper understanding of these subjects, supporting meaningful learning experiences.

Selected Courses

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|-----------------------------------|----------|------------------------------|-------|
| • Finite Element Methods | 18.25/20 | • Aircraft Design II | 20/20 |
| • Optimization Methods | 17.25/20 | • Aerodynamics II | 19/20 |
| • Aerospace Technology Management | 20/20 | • Materials Science | 18/20 |
| • Differential Equations | 19/20 | • Automatic Systems in Space | 19/20 |

Programming Skills

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- | | | | |
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| • Python | • MATLAB | • C++ | • Fortran |
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Software Skills

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- | | | |
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| • Solidworks | • AutoCAD | • LaTeX |
| • Abaqus | • COMSOL | • Maple |
| • Ansys | • Arduino | • Photoshop |

Language Proficiency and Test Scores

- **Persian** *Native*
- **English** **IELTS: 6.5** (Nov, 2022)
Reading: (6), Listening: (6), Speaking: (6.5), Writing: (6.5)
GRE: 329 (June, 2023)
Verbal Reasoning: (160), Quantitative Reasoning: (169), Analytical Writing: (4.5)

Workshops & Courses

- Sustainable Aviation** **Online**
Held by Delft University of Technology **2023**
- Arduino Programming** **Online**
Held by maktabkhooneh.org **2022**
- Plastic Injection Mold Design using Solidworks** **Online**
Held by faradars.org **2022**

References

Prof. Mojtaba Farrokh

- **Affiliations:** *Associate Professor and Head of KNTU Aerospace Faculty*
- **Email:** farrok@kntu.ac.ir

Prof. Farshad Pazooki

- **Affiliations:** *Assistant Professor and Head of IAU Aerospace Faculty*
- **Email:** pazooki_fa@srbiau.ac.ir

Dr. Sina Alizadeh

- **Affiliations:** *Product Manager at Tentamus Group, Bremen*
- **Email:** kamaleddin.alizadeh@tentamus.com