Mohammed Shafeeque K K

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Professional Summary

PhD thesis recently submitted at the Department of Mechanical Engineering, IIT Palakkad. Experienced mechanical engineering researcher with expertise in fracture mechanics, stress analysis, and computational modeling. Proficient in FEM tools (ANSYS APDL, ABAQUS with Python), MATLAB, and LaTeX. Published in peer-reviewed journals and presented at international conferences. Skilled in academic instruction, student mentoring, and technical documentation. Currently seeking postdoctoral opportunities in solid mechanics and fracture mechanics–related areas.

Employment History

Assistant Professor, Al Ameen Engineering College, Palakkad *2017 – 2018*

- Taught CAD and Machine Design to undergraduate students.
- Mentored academic projects and improved student problem-solving skills.
- Introduced interactive teaching methods, increasing engagement by 20%.
- Supported curriculum development and departmental operations.

Education

Ph.D. in Mechanical Engineering *2018–2025*
Indian Institute of Technology Palakkad *Specialization: Fracture Mechanics*

- Thesis: Mixed-mode fracture analysis in circular rings using weight function techniques.
- Tools: ANSYS APDL, ABAQUS (Python scripting), MATLAB.
- Achievements: Published in peer-reviewed journals; presented at international conferences.

M.Tech. in Mechanical Engineering (Machine Design) *2015–2017*
College of Engineering, Trivandrum

- CGPA: 9.18
- Thesis: Finite Element Analysis of a cantilever beam under large deformation and follower force.
- Coursework: Machine Design, Structural Dynamics, Finite Element Methods.
- Activities: Participated in workshops on CAD tools and computational methods.

B.Tech. in Mechanical Engineering *2010–2014*
Kannur University

- Rank: Top 10% of class.
- Projects: Designed a loading/unloading cum carrying machine; conducted energy audit at Western India Plywoods Ltd.

Research Publications

International journals

1 Mohammed Shafeeque K. K. and K. V. N. Surendra, "Weight functions for T-stresses in inner/outer double edge cracked circular rings," *Theoretical and Applied Fracture Mechanics*, 136, pp. 104782, 2025. DOI:doi.org/10.1016/j.tafmec.2024.104782

2 Mohammed Shafeeque K. K. and K. V. N. Surendra, "Weight functions for opening mode stress intensity factors for double edge cracked rings using two reference configurations," *Theoretical and Applied Fracture Mechanics*, 139, pp. 105004, 2025.

DOI:doi.org/10.1016/j.tafmec.2025.105004

Chapters of edited books

1 Mohammed Shafeeque K. K. and K. V. N. Surendra, "Analysis of a Double Edge Cracked Circular Ring Under Diametrical Compression," *Recent Advances in Computational and Experimental Mechanics, Vol II*, Springer Nature Singapore, pp. 409–420, 2022.

DOI:doi.org/10.1007/978-981-16-6490-8_34

2 Mohammed Shafeeque K. K. and K. V. N. Surendra, "Stress Distribution in Infinitely Long Plate with Circular Hole Loaded by Concentrated Loads," *Recent Advances in Applied Mechanics*, Springer Nature Singapore, pp. 95–108, 2022.

DOI:doi.org/10.1007/978-981-16-9539-1_7

Conference Presentations

- *Application of Weight Functions of double edge cracked circular rings for t-stress*, ICSID 2025, 8th International Conference on Structural Integrity and Durability (Dubrovnik) Croatia – Accepted for in-person oral presentation.
- *Stress Intensity Factor for Symmetric Pair of Surface Cracks in a Finite Solid* the 4th Structural Integrity Conference and Exhibition, Department of Mechanical and Aerospace Engineering, IIT Hyderabad, under the aegis of InSIS, 2022.
- *Stress Distribution in Infinitely Long Plate with Circular Hole Loaded by Concentrated Loads*, Virtual Seminar on Applied Mechanics (VSAM), 2021.
- *Analysis of a Double Edge Cracked Circular Ring Under Diametrical Compression*, 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics, hosted by IIT Kharagpur, 2020.
- *Stress Analysis of Diametrally Loaded Circular Ring at Inner/Outer Edge*, 65th Congress of ISTAM, 2020, The Indian Society of Theoretical and Applied Mechanics (An International Conference).
- *Contact Stress Analysis of Brake Drum Under Different Contact Conditions*, IndiaTrib – 2019, 10th International Conference on Industrial Tribology, organized by the Department of Mechanical Engineering, Indian Institute of Science (IISc), Bangalore.
- *Analysis of a cantilever beam subjected to large deformation under follower force* 18th National conference on technological trends (NCTT 2017), CET Trivandrum.

Skills

Simulation & Programming: ANSYS APDL, ABAQUS, MATLAB, Python
Design Tools: AutoCAD, SolidWorks, Pro-E
Academic Tools: LaTeX, symbolic computation
Research Areas: Fracture mechanics, stress analysis, FEM, weight function techniques
Languages: English, Hindi, Malayalam

Achievements

- Qualified GATE 2015 in Mechanical Engineering with a score of 513.
- Published research in peer-reviewed journals and Springer proceedings.
- Presented at IISc, IIT Kharagpur, IIT Hyderabad, ISTAM.
- Designed FEM models with industrial relevance.
- Took part in the setting up of Photoelasticity lab at IIT Palakkad
- Mentored undergraduate projects with innovative outcomes.

References

Available upon request