Education

Doctorate (Dr.-Ing.)
University of Duisburg-Essen
Jul. 2024

M.Sc. Computational Mechanics
University of Duisburg-Essen
Jul. 2017

B.E. Automotive Engineering
NED University
Dec. 2012

Expertise

Multi-Physics Problems

Numerical Methods

Structural Analysis

Fracture Mechanics

Engineering Materials

Skills

Advance

SBFEM | Matlab | Ansys | FORTRAN

Proficient

FEM | CFD | C++ | Python | LaTex

Intermediate

Linux | Git | HTML | CSS | JavaScript

Languages

Urdu (native speaker)

English (business fluent)

German (fluent)

Muhammad Danish
IQBAL

Computational Engineer

m-d.iqbal@outlook.com +4917682044361 45145, Essen

Work Experience

Research Assistant
Aug. 2017 - Mar. 2024

University of Duisburg-Essen, Germany

- Authored a Ph.D. thesis on *"Development of scaled boundary polygon elements for coupled thermoelastic fracture modeling."*
- Developed and implemented a novel finite element (Scaled Boundary Finite Element) within the framework of our in-house MATLAB library to model multi-physics fracture problem in specialized engineering materials.
- Delivered lectures on Structural Dynamics and Computer Language For Engineers (CLFE). Coordinated course management, expanded curriculum, and provided hands-on laboratory training.
- Supervised master's and bachelor's theses on diverse topics in numerical modeling, including Computational Fluid Dynamics (CFD), dynamic load analysis, and polygon meshing techniques.
- Led an E-Learning initiative to implement an interactive learning approach, enhancing the accessibility and engagement of course materials for students.

Visiting Researcher
Jan. 2020 - Mar. 2020

Federation University, Australia

- Collaborated between the University of Duisburg-Essen and Federation University to advance joint research initiatives under the Australia-Germany Joint Research Cooperation (DAAD-PPP).
- Conceptualized, strategized, and implemented the extension of the Scaled Boundary Finite Element Method to model thermoelastic fracture in special-purpose engineering materials.

Student Assistant
Jan. 2017 - Mar. 2017

University of Duisburg-Essen, Germany

- Developed a special-purpose polygon-based finite element (Scaled Boundary Finite Element) in FORTRAN.
- Integrated the element subroutine into an open-source software FEAPpv.

Publications

M. D. Iqbal, et al. *"Transient thermoelastic fracture analysis of functionally graded materials using the scaled boundary finite element method."* Theoretical and Applied Fracture Mechanics, vol. 127, Oct. 2023, p. 104056.

M. D. Iqbal, et al. *"Thermoelastic fracture analysis of functionally graded materials using the scaled boundary finite element method."* Engineering Fracture Mechanics, vol. 264, Apr. 2022, p. 108305.

M. D. Iqbal, et al. *"Development of the scaled boundary finite element method for crack propagation modeling of elastic solids subjected to coupled thermo-mechanical loads."* Computer Methods in Applied Mechanics and Engineering, vol. 387, Dec. 2021, p. 114106.

E.T. Ooi, et al. *"A polygon scaled boundary finite element formulation for transient coupled thermoelastic fracture problems."* Engineering Fracture Mechanics, vol. 240, Dec. 2020, p. 107300.