



Danish **Iqbal**

Computational Engineer

✉ m-d.iqbal@outlook.com

☎ +4917682044361

📍 45145, Essen



PROFILE

Engineer and Computational Mechanics Specialist (Ph.D.) with extensive expertise in developing and implementing numerical methods for multi-physics problems in aerospace and automotive industries. Proficient in advanced simulation algorithms, programming in multiple languages, and utilizing specialized CAE software to model materials with complex mechanical and thermal properties. Experienced in project management, delivering innovative, practical solutions on time, and collaborating with cross-functional, international teams. Combines technical excellence, analytical problem-solving, and effective communication to inspire teams and achieve shared goals. A flexible and interculturally adept team player who fosters motivation and collaboration to drive success.

STRENGTHS

Expertise in Simulation and Numerical Modeling: Skilled in developing and implementing advanced numerical methods to solve complex engineering problems, particularly in multi-physics simulations.

Interdisciplinary Knowledge: Expert at integrating in-depth knowledge across engineering disciplines, including thermodynamics, structure analysis, fracture mechanics, and numerical methods, to drive effective and innovative solutions.

Technical Expertise: Expert in advanced programming with MATLAB, FORTRAN, C++, Python, and proficient in utilizing computational tools such as Ansys and Abaqus, with a strong emphasis on algorithm development and numerical simulations.

Project Management and Team Coordination: Development of an innovative interactive learning platforms and contribution to the design and production of a Formula Student car that won 1st place in an engineering competition. Demonstrating strong ability to define and achieve both technical and organizational goals.

Innovation and Problem-solving: Proven ability to develop innovative solutions that enhance efficiency and streamline workflows. Automated exam generation during COVID-19, enabling scalable solutions that saved time and resources.

Intercultural and Communication Skills: Extensive experience working with international partners, including the DAAD-PPP program between Germany and Australia. Strong presentation skills, demonstrated through conference speaking engagements and published scientific articles. Adept at conveying complex technical content in an understandable and persuasive manner.

TECHNICAL SKILLS

- | | | | | |
|-------|----------|------------|-----------|---------|
| • FEM | • Ansys | • MATLAB | • FORTRAN | • C++ |
| • CFD | • Abaqus | • Python | • Git | • LaTeX |
| • CAD | • NX | • ParaView | • HTML | • CSS |

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

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 CFD, dynamic load analysis, and advance 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.

LANGUAGES

- Urdu (native speaker)
- English (business fluent)
- German (fluent)