

# Mohamed Tarek Elewa, Dr.-Ing.

Computational materials scientist with mechanical engineering background and experience in simulations

✉ mtelewa@gmx.de

☎ +49 177 877 4886

🎂 07 Sept. 1990

📍 Waldenburger Str. 7, 76139 Karlsruhe

🌐 mtelewa

🔄 mtelewa

🇪🇬 Egyptian with German residence and work permit



## Work Experience

07/2019 – 07/2023

### 📌 Research associate

Karlsruhe Institute of Technology - Institute of Applied Materials - Department of Reliability and Microstructure (IAM-ZM)

- Performed molecular dynamics simulations of fluid lubricant flows
- Developed state-of-the-art methods for atomistic simulations
- Performed post-processing and data management of molecular trajectories

04/2018 – 03/2019

### 📌 Research assistant

Ruhr Universität Bochum - Interdisciplinary Center for Advanced Materials Simulations (ICAMS) - Department of Atomistic Modelling and Simulation

- Evaluated nucleation in nickel alloys through molecular dynamics simulations of kinetic phase transformation

05/2014 – 04/2018

### 📌 Teaching assistant

British University in Egypt - Department of Mechanical Engineering

- Taught: Machine design, product design, stress analysis and graphic design

05/2013 – 02/2014

### 📌 Research assistant

British University in Egypt - Department of Mechanical Engineering

- Performed finite element modelling of Embedded-Void approach in multi-junction solar cells

## Education

07/2019 – 07/2023

### 📌 Ph.D., Computational Materials Science, Karlsruhe Institute of Technology.

Dissertation title: *Pressure gradients in molecular dynamics simulations of nano-confined fluid flow*

10/2015 – 09/2018

### 📌 M.Sc., Materials Science and Simulation, Ruhr Universität Bochum.

Thesis title: *Studying thermally activated motion of dislocations in BCC iron with Bond order potentials.*

## Education (continued)

09/2007 – 06/2012

■ **B.Sc., Mechanical Engineering (Double degree), British University in Egypt & Loughborough University.**

Thesis title: *Improving performance of photovoltaic systems using a mechatronic tracking control system*

## Skills

Simulations tools	■ LAMMPS (Molecular dynamics), Abaqus (Finite-Element), VASP (Ab-initio)
Design software	■ SolidWorks, LabVIEW, AutoCAD
Coding	■ Python, Bash, Git, C++, HTML, CSS, JavaScript
Documentation	■ $\text{\LaTeX}$ , Vector Graphics, Microsoft Office

## Languages

German	■ Certificate - B1, Communication - B2
English	■ Certificate - C1, Communication - C2
French	■ Certificate - A1, Communication - A1
Arabic	■ Native

## Vocational Training (Excerpt)

### Diplomas

03/2024 – present ■ **Diploma in Full Stack Software Development.** Code Institute

### Training

07/2011 – 09/2011	■ <b>Trainee</b> , Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, Loughborough
07/2010	■ <b>Intern</b> . FARO GmbH, Stuttgart

### Courses & Seminars

07/2021	■ <b>Machine Learning for Materials Research Bootcamp.</b> University of Maryland
01/2021 – 02/2021	■ <b>Nanotribology.</b> Technical University of Denmark
07/2020	■ <b>Materials Project Workshop.</b> Materials Project
11/2013 – 01/2014	■ <b>Solar cells, fuel cells and batteries.</b> Stanford University

## Publications

Available upon request

## Referees

Available upon request