



# Kerem Bükrü

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## SKILLS

- **Software:** Python, C++, Git, Linux, PennyLane, Qiskit, Circ, TensorFlow, PyTorch, NumPy, SciPy, scikit, JAX
- **Expertise:** Quantum Algorithms, Machine Learning, Linear Algebra, Optimization, HPC, Tensor Networks
- **Others:** Chess, E-Guitar, Basketball, Football, German (native), English (fluent)

## EDUCATION

- **Lund University** Lund, Sweden  
*Master thesis: Large-scale topology optimization of nonlinear systems* Apr 2023 – Oct 2023
- **TU Dortmund** Dortmund, Germany  
*M. Sc. Mechanical Engineering; Grade: 1.0 (Top 1%)* Oct 2021 – Oct 2023
- **TU Dortmund** Dortmund, Germany  
*B. Sc. Mechanical Engineering; Grade: 1.2 (Top 1%)* Oct 2017 – Aug 2021
- **Leibniz Gymnasium** Gelsenkirchen, Germany  
*High-School Diploma* Aug 2015 – Jun 2017

## WORK EXPERIENCE: INDUSTRY

- **Siemens Energy AG** Mülheim, Germany  
*Working Student* Oct 2022 - Mar 2023
  - **Data Science:** Data preparation, visualisation and analysis of thermodynamical gas turbine measures.
  - **Prediction:** Creating mathematical models to predict the thermodynamical behaviour of gas turbines.
- **Porsche AG** Weissach, Germany  
*Internship* Apr 2022 - Sep 2022
  - **CAE:** Finite element analysis of crash-test simulations in LS-DYNA and Animator4.
  - **Software:** Developing a framework to compute head injury criteria in Python.
- **Bosch Rexroth AG** Dortmund, Germany  
*Working Student* Oct 2021 - Mar 2022
  - **Computation:** Calculating important stress measures of gears and transmission components.
  - **Design:** Reconstruction of an automatic transmission.
- **Bosch Rexroth AG** Dortmund, Germany  
*Internship* Apr 2021 - Jul 2021
  - **Computation:** Calculating the fatigue strength of gears.
  - **Data science:** Preparing and visualizing data in Excel and Powerpoint.

## WORK EXPERIENCE: ACADEMIA

- **Institute of Structural Mechanics** Dortmund, Germany  
*Research Assistant* Nov 2022 - Sep 2023
  - **Simulation:** Executing shape optimization simulations using damage-incorporated material models.
  - **Scripting:** Creating Python-Scripts for nonlinear structural optimization routines.
- **Institute of Mechanics** Dortmund, Germany  
*Research Assistant* Oct 2021 - Aug 2022
  - **Simulation:** Enhancement of a magneto-mechanic coupled finite element framework in MATLAB.
  - **Data Science:** Data generation, preparation and visualization.
- **Institute of Mechanics** Dortmund, Germany  
*Student Assistant* Apr 2019 - Mar 2021
  - **FEM:** Programming more-dimenisonal dynamic finite element codes in MATLAB and Python.
- **Institute of Mathematics** Dortmund, Germany  
*Student Assistant* Oct 2018 - Mar 2019
  - **Teaching:** Supervision of Higher Mathematics courses for engineering students.

## EXTRACURRICULAR ACTIVITIES

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- **MINTalents@tk** Dortmund, Germany  
*Sponsoring network*  
Oct 2021 - Oct 2023
  - **Management:** Training with the software TOPSIM, sponsored by thyssenkrupp.
- **Get racing Dortmund e. V.** Dortmund, Germany  
*Formula Student Team*  
Oct 2021 - Nov 2022
  - **Aerodynamics:** Manufacturing an aerodynamics package.
  - **Chassis:** Coding a finite element method framework to analyze chassis stresses.

## SCHOLARSHIPS

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- **Deutschlandstipendium**  
*Sponsor: BASF SE*  
Oct 2022 – Sep 2023
- **Deutschlandstipendium**  
*Sponsor: ABB AG*  
Oct 2019 – Sep 2022