Jousef Murad | Curriculum Vitae

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"I could either watch it happen or be a part of it."
- Elon Musk

Mechanical engineer in the final year of a master's degree with focus on fluid mechanics. Passionate about science, with interest in turbulence modelling, artificial intelligence, entrepreneurship and developing interpersonal skills.

Foundations

Engineered-Mind **Bellheim**
Founder *June 2019*

Website and YouTube channel (Jousef Murad) for engineering, programming, AI as well as psychology and self-development.

Employment - Industry

SimScale GmbH **Munich**
Community & Academic Program Manager *June 2018 - today*

Forum manager and full-time support for users in the field of FEA, CFD and Thermal Analysis. Responsible for over **100** Formula student teams from all over the world. Community building by recruiting Power Users to grow the overall user engagement.

SimScale GmbH **Munich**
Community Manager *July 2017 - June 2018*

Engaging users in the forum helping them with getting their simulation done in the fields of CFD, FEA, Thermal Analysis.

SimScale GmbH **Munich**
FEA Simulation Assistant *November 2016 - July 2017*

Setting up simulations in FEA & CFD. Full-time user support and content creation for the community.

Studytutors
Tutor *August 2016*

Doing webinars about mechanical design for 22 people.

APL GmbH **Landau**
Working Student *May 2015 - September 2015*

Generation of real surfaces and evaluation of surface properties as well as investigation of surface parameters with the Fast-Fourier-Transform with MATLAB.

- **APL GmbH** — **Landau**
  Working Student — *April 2015 - May 2015*
  Data evaluation of tribological data - preparation and filtering of surfaces with MATLAB. CAD modelling of a V8 engine, dynamic animation as well as rendering with Creo 3.0 & Keyshot.

- **APL GmbH** — **Landau**
  Internship — *October 2014 - January 2015*
  Calculation of engine components with the Finite-Element-Method and investigating tribology and contact mechanics.

- **APL GmbH** — **Landau**
  Internship — *September 2013 - October 2013*
  Basic internship in the field of basic machining methods, cutting methods, connection technology and CAD modelling with Pro-E for a self-built stirling engine.

- **Daimler AG** — **Wörth**
  Working Student — *August 2011 - September 2014*
  Working at the assembly lines for the Actros and Zetros trucks of Daimler.

Employment - Karlsruhe Institute of Technology

- **Karlsruhe Institute of Technology - Institute for Engineering Mechanics** — **Karlsruhe**
  Tutor — *June 2019 - March 2020*
  Tutor students about numerical methods like the finite difference (FDM) and finite element method (FEM), computational fluid dynamic problems as well as design of experiments (DoE) and their implementation inside of MATLAB.

- **Karlsruhe Institute of Technology - Institute for Prod. Dev. (IPEK)** — **Karlsruhe**
  Research Assistant — *November 2018 - July 2019*
  Lecturing students about cloud-based simulation technology (SimScale) and introducing the basics of the Finite Element Method (FEM)

- **Karlsruhe Institute of Technology - Institute for Mechanics (ITM)** — **Karlsruhe**
  Tutor — *October 2018 - December 2019*
  Tutoring more than 50 students in the field of Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA) in the the field of **Modeling and Simulation** using MATLAB.

- **Karlsruhe Institute of Technology - Institute for Process Engineering** — **Karlsruhe**
  Research Assistant — *May 2018 - August 2018*
  Investigating the physics of the Taylor-GreenVortex with the Lattice Boltzmann Method with strong focus on spectral methods and validation of the Kolmogorov spectrum using the tool FFTW.

- **Karlsruhe Institute of Technology - Institute for Fluid Mech. (ISTM)** — **Karlsruhe**
  Research Assistant — *October 2017 - December 2019*
  Tutor for experimental fluid mechanics. Responsible for several groups of students teaching about density based measurement techniques and experiments including Mach-Zehnder Interferometry & Schlieren Technique.

- **Karlsruhe Institute of Technology - Institute for Prod. Dev. (IPEK)** — **Karlsruhe**
  Research Assistant — *July 2017 - August 2017*
  Working on the script for the lecture Product Development - Development Method.

- **Karlsruhe Institute of Technology - Institute for Prod. Dev. (IPEK)** — **Karlsruhe**
  Tutor — *June 2016 - August 2016*

Tutor for mechanical design.

- **Karlsruhe Institute of Technology - Institute of Fluid Machinery (FSM)** **Karlsruhe**
  Research Assistant *February 2016 - June 2016*
  Fluid solver code debugging with Alinea DDT.

- **Karlsruhe Institute of Technology - Institute for Mechanics (ITM)** **Karlsruhe**
  Working Student *February 2014 - October 2014*
  Investigation of material parameters for strain hardening with a dynamic-mechnical analyser with tensile tests for metal sheets and polymers.

- **Karlsruhe Institute of Technology - Institute for Prod. Dev. (IPEK)** **Karlsruhe**
  Research Assistant *February 2013 - September 2013*
  Contact simulations with Abaqus 6.12.

Notable Projects

- **Masters Project:** *'Linear Stability Analysis for Plane Poiseuille flow'*
  As a first step to determine the stability of a fluid flow problem, one often supposes that the perturbations to the basic state are of very small amplitude, which allows for a linearisation of the equations. Although this is a strong assumption, linear stability analysis has proven useful in many flow configurations - the stability of a plane channel flow has been analyzed.

  : `https://github.com/jousefm/Linear-Stability-Analysis-Poiseuille`

- **Masters Project:** *'Lattice Boltzmann Method'*
  This report involved simulations for a Lid-Driven Cavity and the Kármán Vortex Street. Different code adaptions had to be made and several test cases have been carried out.

  : `https://github.com/jousefm/LBM-1`

Education

Academic Qualifications

- **Karlsruhe Institute of Technology** **Karlsruhe**
  Master Mechanical Engineering *April 2017 - today*
- **Karlsruhe Institute of Technology** **Karlsruhe**
  Bachelor Mechanical Engineering *September 2011 - April 2017*
- **Eduard-Spranger Gymnasium** **Landau**
  High School *2007 - 2011*

Thesis

Bachelor of Science with focus on "Construction and Validation of Mechanical Constructions"

Title: Investigation of the modelling of real, technical surfaces

Supervisor: Dipl.-Ing. Stefan Reichert (IPEK Karlsruhe)

Description: Analysis of statistical roughness parameters of numerical generated surfaces. The finite element software Abaqus was used to import topographies generated with a Matlab script allowing a contact simulation between two surfaces. An automatic report generator has been written showing the change of the so called Abbott-Firestone curve.

Master of Science with focus on "Fluid Mechanics & Computational Mechanics"

Title: Generative Adversarial Networks (GANs) & Deep Reinforcement Learning - Started May, 1st 2020

Supervisor: M.Sc. Carmen Krahe

Description: No description & title yet.

Certifications

- **Udacity** — **Online**
  Deep Reinforcement Learning Nanodegree — *Currently working on*
  Learn cutting-edge deep reinforcement learning algorithms—from Deep Q-Networks (DQN) to Deep Deterministic Policy Gradients (DDPG). Apply these concepts to train agents to walk, drive, or perform other complex tasks, and build a robust portfolio of deep reinforcement learning projects

- **Udacity** — **Online**
  Deep Learning Nanodegree — *Currently working on*
  Doing the Deep Learning Nanodegree from Udacity learning about NNs, CNNs, RNNs, GANs and how to deploy a model

- **Dynamore** — **Stuttgart**
  Seminars — *December 2019*
  Introduction to LS-DYNA, Introduction to LS-PrePost, Nonlinear implicit analyses

- **Coursera** — **Online**
  AI for Everyone — *Finished with a certificate*
  Learned about AI terminologies, state-of-the-art learning methods, how to implement AI into a company also taking into account technical, business and ethical diligence

- **Udemy** — **Online**
  Machine Learning A-Z: Hands-On Python & R In Data Science — *Finished with a certificate*
  Creating Machine Learning Algorithms in Python (R was neglected)

- **TU Dresden** — **Karlsruhe**
  Short Course — *September,12th - September, 14th 2018*
  Numerical Calculation of turbulent flows in science and practice

- **Karlsruhe Institute of Technology** — **Karlsruhe**
  Spring School — *March,19th - March, 23rd 2018*
  Lattice Boltzmann Methods with OpenLB Software Lab

- **Karlsruhe Institute of Technology** — **Karlsruhe**
  Training Course — *October 2017*
  Introduction to the computational fluid dynamics with OpenFOAM. Learn the use of existent solvers and utilities as well as the extension and modification of solvers for own simulation purposes.

- **Karlsruhe Institute of Technology** — **Karlsruhe**
  CAE Workshop — *Summer Semester 2016*

Learning about the Finite Element Method, topology optimization and shape optimization using the commercial software package Abaqus.

Technical skills

Computer Languages

- **Basic:** Python, Git, Maple
- **Intermediate:** Matlab, LaTeX

Modelling & Simulation Software

- **Basic:** Creo 2.0 & 3.0, IcemCFD,Tecplot, OpenFOAM, Star CCM+, LS-DYNA
- **Intermediate:** SimScale, Ansys, Abaqus 6.12 - 6.14, Pro Engineer, Catia, MS Office, Paraview

Scholarship

- **Louis Schuler Fonds:** December 2014 - July 2016 & April 2018 - September 2019
- **Bertelsmann Technology Scholarships** - **Udacity** (2019)

Ambassadorship

- **GitKraken:** July 2019 - today

Languages

- **German:** Mother tongue
- **English:** Advanced (C1 with certificate)
- **French:** Basic
- **Arabic:** Basic

Interests

- Passionate about the game DotA for more than 10 years now being a former clan player. Interested in the progress of OpenAI and their bot competing against the best player in the world by using reinforcement learning (RL) techniques.
- Growing my YouTube channel to help and inspire people all over the world.