Ashwani Kumar

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PROFESSIONAL EXPERIENCE

ETH Zürich, Switzerland 09/2021 - Present

Research Scientist - Advanced Manufacturing Lab

– Applied mechanistic multiscale FE^2 methods to connect microscale material behavior with macroscale processing outcomes, enabling predictive modeling of complex material systems.
– Developed machine learning surrogates to accelerate multiscale simulations, combining mechanistic and data-driven modelling to support fast innovation decisions.
– Designed ML surrogates for microscale RVEs to accelerate multiscale FEA workflows and support short-timescale decision-making.

Ruhr University Bochum, Germany 05/2019 - 08/2021

Research Assistant (HiWi) - Chair of Statics and Dynamics

– Identified optimized placement of Dog-Bone button on scapula for shoulder surgery through FEM simulations to enhance surgical outcomes.
– Worked on FEM-based diffusion simulation for fluid flow in fractured rock.
– Performed nonlinear Abaqus analyses (TBM grout) and presented clear, concise recommendations to guide structural assumptions.

Hero MotoCorp Ltd, India 07/2014 - 10/2018

Deputy Manager - Chassis Simulation & Analysis

– Planned, executed, and evaluated static & dynamic strength and vibration tests (strain gauges, accelerometers, shakers); produced test plans, reports, and test–analysis correlation to support design approval.
– Ran fatigue, modal analysis programs using Siemens LMS & HBM systems; translated results into design actions under tight timescales with cross-functional teams.
– Converted field loads to qualification-style lab profiles; created verification matrices and test procedures to demonstrate static/dynamic strength and vibration behavior compliance.
– Led a cross-functional team of six riders/engineers; presented results to design/simulation and drove decisions quickly.

EDUCATION

ETH Zurich, Switzerland 09/2021 - Present

Doctor of Science in Mechanical Engineering

– Thesis: Multiphysics modeling of SPS process

Ruhr University Bochum, Germany 10/2018 - 06/2021

Master of Science in Computational Engineering, *GPA: 0.8* (German scale)

– Thesis: Computational Modeling of crack propagation in 3D using strain injection technique

Dr B R Ambedkar National Institute of Technology, Jalandhar 01/2010 - 12/2014

Bachelor of Technology (B.Tech.) in Mechanical Engineering, *GPA: 8.6/10*

– Thesis: Experimental evaluation of damping behavior of fly ash filled fiber reinforced polymer composite

SKILLS

Simulation & Design Tools:	Abaqus, ANSYS, AutoCAD, CATIA, COMSOL, HyperMesh
Programming & Libraries:	Python, C++, Java, Matlab, PyTorch, TensorFlow
Languages:	English (C2), German (B1), Hindi (Native), Rajasthani (Native)
Data Acquisition & Analysis:	LMS TestLab, Matlab, nCode Glyph
Technical Skills:	Scientific Computing, Multiphysics & Multiscale Modeling, Machine Learning, Surrogate Modeling

AWARDS & SCHOLARSHIPS

- Achieved DEUTSCHLANDSTIPENDIUM for the excellent international student at RUB 03/2019
- Awarded by Achiever Award-2017-18 for Exemplary performance at Hero MotoCorp Ltd 03/2018
- Awarded Gold Medal (Roll of Honour-2014), Securing first rank in college in B. Tech. 09/2014

CERTIFICATIONS

- Training on 2D data Acquisition Hardware & Software 09/2016
- Training on Vibration Analysis 08/2015
- Training on nCode Glyphwork 08/2015
- Training on Experimental Stress Analysis 02/2015