

# Rather Abdul Hamid

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## LinkedIn Education

Since March 2023 M.Sc Aerospace Engineering (Second Semester)

[Universität Bremen, Germany](#)

Focus: Rocket Propulsion and Design, Data Analysis, Web development

10/2022 - 02/2023 M.Sc Mechanical Engineering and German Language student [University Change] [Universität Duisburg-Essen, Duisburg, Germany](#) Focus: German language A1-B2

05/2016 - 06/2020 Bachelors in Aerospace Engineering

[SRM Institute of Science and Technology, India](#)

Focus: Design and Space propulsion, Fluid flow visualization & analysis

## Skills

**Languages & Tools:** Python, SQL, Matlab | Jupyter, Excel, HTML, CSS, PowerBI, Git(hub), MS-

Office. **Software:** Catia, SolidWorks, Siemens NX, Ansys, CFD, AutoCAD, LateX.

**Libraries:** Pandas, Numpy, Matplotlib, Plotly, Bokeh.

**Languages:** English(C2), Hindi(C2), Urdu(C2), German(B1)

## Practical Experience

08/2023 - Present **Studentische Hilfskraft:** Simulation, Testing, digitization, documentation for fiber Composites.

[Faserinstitut Bremen](#)

Tools: Ansys, Catia, Numerical modeling and simulation, 3d printing, dry & wet Winding, Python, G-code, CNC machining.

- Working on composite tanks used for hydrogen storage - HYTANK
- Composite material analysis and testing.
- Cryogenic analysis of composites and their behavior under such temperatures.
- Permeation testing and analysis.
- Developed a permeation test stand for permeation.
- Development of Python code to generate G-code for different profiles.
- CAD Modeling and 3D Printing
- Process set-up, parameter analysis and optimization of the winding technology for assembly of aerospace structures.
- Literature survey, simulation approaches and numerical simulation.

08/2023 - 01/2024 **WerkStudent:** Flight Demonstrator Assembly and component Testing

[Polaris Spaceplanes](#)

Tools: Python, OOP, Web Development, Git, GitHub, Data analysis. Modeling, 3d printing, Soldering, wiring, integration, testing, Fluid handling.

- CAD Modeling and 3D Printing of flight demonstrator parts.
- Assembly, integration & test processes of MIRA demonstration.
- Integration of fuel tanks in the spaceplane demonstrator.
- Wiring of the whole spaceplane and integration of softwares.

- Post-processing and analysis of flight tests.
- Post-processing library development (Python).
- Combining existing data with necessary data infrastructure, leveraging tools such as Google Sheets, databases, and others to facilitate seamless data collection and analysis.
- Data analysis of aerospike engine hot fire test.
- Participation in project and test campaigns.
- Introduction and implementation of changes from engineering and integration

#### 01/2023 - 04/2023 Internship: Propulsion Test Data Intern

##### Rocket Factory Augsburg

Tools: *Python, Pandas, Numpy, Matplotlib, Plotly, Bokeh, Excel.*

- Data analysis of Rocket engine Hot-fire and Cold flow test.
- Rocket engine data analysis using python: Data processing using numpy, scipy, and pandas and plotting using matplotlib, plotly and bokeh
- Improvement of pressure drop testing process by developing automatic detection of parameters using python and its libraries.
- Spectral analysis of high frequency data.
- Documentation of test data.
- Data extraction from sensors and data cleaning on excel dataset.
- Processed data generated by 100 sensors during an engine and powerpack test.
- Analyzed and handled test data of the rocket engine. After processing of test data, evaluated the health and performance of the staged combustion engine.
- Evaluated the data to improve the existing design and development of upcoming projects. • Helped in writing and testing the functions which were used in the backend of the test data analysis software.

#### 09/2021 - 12/2021 Internship: Propulsion and Design Intern

##### SpanTrik: Space Startup

- Worked as a team member for the design and propulsion team.
- Designed, manufactured and analyzed sounding rocket RAVEN.
- Testing of Propulsion system and documentation of tests.
- Experienced in working under pressure to provide quality service.
- Positive "can do" attitude while and an ability to multi-task with team members.

#### 10/2018 - 06/2020 Werkstudentin Advance Computational Laboratory

##### Aerospace Department SRM University

Tools: *Ansys, Numerical calculation, Data Visualization, Data extraction and data handling.* • Designed and analyzed metallic and composite, experiment and test, and structural and mechanical parts. • Interfaced with manufacturing to build designs and troubleshoot design and interfacing problems. • Designed CAD models and 3D printed test prototypes.

- Assembled and ran various technical activities within a larger laboratory setting.
- Utilization of data from experiments and simulations of a turbulent flow for analysis of heat transfer in relation to the distance from the nozzle exit and other parameters.
- Organized, created, and updated documentation for a variety of systems and disciplines. • Collaborated with multidisciplinary teams to modify instrument models and develop mechanical design solutions.

## Projects

## Master Project

- Development and validation of a model for the simulation of cryogenically thermally induced microcracks in CFRP

Simulation and Experimental study.

## Programming

### Web Development:

Enthusiastic web development learner with intermediate proficiency in HTML, CSS, and currently advancing skills in JavaScript. Strong foundation in Python and object-oriented programming.

## Heat Transfer

- **Effect of Fin Orientation on Convective Heat Transfer:** Worked on this project in my Second Year under the guidance of Abdul Rasheed, Assistant Professor in the Department of Aerospace Engineering. The Major goal of my project was to experimentally study the effect of fin Orientation on heat transfer.
- **Effect of Surface Roughness on Heat Transfer:** This Was the project I did with my seniors where we studied the effect of heat transfer rate on using mesh with different configurations. The project was submitted as a major project.
- **Heat Transfer Through Heat pipes:** Worked on this project to study the setup, carried out the experimentation to analyze how the heat is transferred from one point to another. This work also gave me a chance of how the heat can be thrown out from a system using phase change material.

## Flow Visualization

- **Design and Construction of Mini JetImpingement Tunnel:** Designed a mini jet impingement tunnel with the help of commercially available things which took 6-7 months to be used as a working model
- **Analysis of Flow Issuing from Nozzle:** This analysis was done with the help of a self-made jet impingement tunnel where experimentation was carried out and the post-processing was done using MATLAB. The main objective of this work was to visualize the flow issuing from nozzles at different Reynolds numbers. This Work was done under the guidance of Assistant Research Professor Dr. Kannan B T.
- **Flow Impingement on a Flat Plate:** This Project was done to visualize the flow on a Flat Plate varying the Reynolds Number of the flow. The visualization was done using a High-speed Camera provided by the Department of Aerospace engineering and this work was done under the guidance of Assistant Research Professor Dr. Kannan B T.

## Aerodynamics

- **Numerical Analysis Over an Airfoil used in the gas turbine, NACA-4410:** This study was done under Vinayak Malhotra, Assistant Professor in Department of Aerospace Engineering. Ansys Fluent software was used to carry out the study. This study was done to study the various characteristics like lift, drag, sheer force of an airfoil to be used in turbines. The Comparison of different airfoils used in turbines was done.

## Publications

- AH Rather, Kannan B.T., **Design and Development of Impinging Jet Facility for Flow Visualization Studies**, ICAME 2020.
- Nikhil Gaur, AH Rather, Kannan B.T., **Feasibility Study of Ion Generator for Flow Control**, FAME 2020.
- Nikhil Gaur, AH Rather, Deepali, Kannan B.T, **Visualization of Flow Control using Ion Wind on Impinging Jet**.

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Bremen, 01/09/2025