

# Bhupender Bindal

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## Skills

<b>Programming</b>	Python (Pandas, PyTorch, OpenCV, NumPy, Scikit-learn, Gradio), Java, SQL
<b>Platforms and Tools</b>	Linux, Shell (Bash), Docker, Microsoft Office, Git and GitHub, Make, Yaml and LaTeX (Overleaf)
<b>Soft Skills</b>	Teamwork, Problem-solving, Documentation, Engaging Presentation
<b>Language</b>	English: Professional proficiency (IELTS 7.5), Deutsch: Limited proficiency (DSH 1), Hindi: Native proficiency

## Personal Profile

I am a master's student in Computational Sciences in Engineering at TU Braunschweig, specializing in data science and programming. I have worked on diverse projects, including analyzing microscopic image data in both material and biology domains for my master's thesis and student projects and managing large-scale Geospatial data in a student job. I am eager to contribute and continually expand my knowledge in a professional environment, working on projects that aim to bring about positive change.

## Relevant Experience

### Institute for Sustainable Urbanism (ISU), Technische Universität Braunschweig

Braunschweig, Germany

HiWi student

March 2024 - September 2024

- Project: Geospatial grouping of CityGML dataset
- Implemented an automated data pipeline extracting millions of 3D building data of the German states from GML to SQLite using Python
- Parsed features such as geo-coordinates, and added new features, including land type classifications (urban or non-urban), utilizing GeoPandas
- Reduced the processing time from days to a few hours by eliminating a large number of small files with a local SQLite database
- Quantified and logged data processing information, including processed and rejected data
- Sampled data to support a country-wide scope of the project

## University Projects

### Master thesis: Microscopic image super-resolution for Carbon Fiber Reinforced Polymer samples

Braunschweig & Stade, Germany

Technische Universität Braunschweig | German Aerospace Center (DLR)

February 2024 - August 2024

- Performed a comprehensive literature review and selected single image-based and example-based super-resolution methods
- Implemented automated data preprocessing that generates aligned high and low-resolution images
- Applied image super-resolution methods and achieved high-quality images from low-resolution Carbon Fiber Reinforced Polymer images
- Reduced time for obtaining high-resolution images in comparison to that of a microscope

### Studienarbeit: Multi-view classification of chloroplast cells | [GitHub](#)

Braunschweig, Germany

Technische Universität Braunschweig

May 2023 - August 2023

- Implemented Multi-view Convolutional Neural Networks using PyTorch and Lightning libraries to classify microscope-scale images of chloroplast cells
- Conducted training for both multi-view and single-view methods on simulated data and logging the experimentation with tensorboard
- Assessed performance of trained models on simulated data and real-world scenario data
- Analysed and deliberated on the potential constraints like sampling bias and data leakage and possible limitations of the approach in real-world situations
- Containerised the application using Docker for inference and hosted it as a web application on Huggingface

### Personal Project: Geographical Map Representation of 2019 Indian General Election Winners | [GitHub](#) | [Map](#)

Braunschweig, Germany

Technische Universität Braunschweig

August 2023

- Developed an interactive map showcasing information about the winners of the 2019 Indian general elections
- Scraped the required data from two websites and performed necessary data preprocessing for effective plotting
- Leveraged the Pydeck library to transform data into an interactive map visualization

## Education

### Technische Universität Braunschweig

Braunschweig, Germany

Masters in Computational Sciences and Engineering

October 2021 - Current

- Grade: 2.0 out of 4

**Jamia Millia Islamia University**

Bachelor of Technology in Mechanical Engineering

- Grade: 8.64 out of 10 (10 is best)

*New Delhi, India**July 2013 - June 2017*

## Previous Experience

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**Tata Consultancy Services Ltd.***New Delhi and Bangalore, India*

Design Engineer

*October 2017 - August 2021*

- Executed the layout and packaging of parking sensors in passenger cars, ensuring adherence to safety standards for a leading Japanese automaker
- Developed 3D models from styling surfaces and created 2D drawings for bumpers and related mounting components
- Managed communication with the onsite team effectively, ensuring clarity and resolving gaps in information flow, which improved efficiency and reduced errors and rework
- Designed pneumatic and hydraulic systems for shipbuilding, collaborating closely with the Ship Systems Design team and other design departments