Bhupender Bindal

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Skills

Programming	Python (Pandas, PyTorch, NumPy, Scikit-learn, Gradio), Java, SQL
Platforms and Tools	Linux, Shell (Bash), Docker, Microsoft Office, Git and GitHub, Make, Yaml and LaTeX (Overleaf)
Soft Skills	Teamwork, Problem-solving, Documentation, Engaging Presentation
Language	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 building data in a HiWi role. I am eager to bring my expertise to innovative projects and continually expand my knowledge in a dynamic professional environment.

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 a data pipeline using Python to expand the project for data from new states
- Quantified and logged data properties, including the amount of processed and rejected data, to facilitate raw data analysis
- Parallelized the processing to efficiently utilize available resources

Physikalisch-Technische Bundesanstalt (PTB) — *Braunschweig, Germany*

HiWi student — *June 2022 - April 2023*

- Project: Sample tip distance control in Atomic Force Microscope (AFM) simulation using AI controller
- Implemented features including training data augmentation, prioritized experience play and dueling network outlined in the improvement in Deep Q-Network research paper
- Streamlined the process for repeated training, storing training and test results, and generating related graphs
- Assessed the repeatability and reproducibility of the methodology
- Created preliminary project documentation using Sphinx

University Projects

Master thesis: Microscopic Image Super-Resolution for Carbon Fiber Reinforced Polymer Samples — *Braunschweig, Germany*

Technische Universität Braunschweig — *February 2024 - August 2024*

- Image processing pipeline to transform image pairs at different resolutions
- Explore

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 tensorbaord
- 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 *New Delhi, India*

Bachelor of Technology in Mechanical Engineering *July 2013 - June 2017*

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

Previous Experience

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
- Effectively managed communication with the onsite team, ensuring clarity and resolving gaps in information flow, which improved project timelines and reduced errors
- Designed pneumatic and hydraulic systems for shipbuilding, collaborating closely with the Ship Systems Design team and other design departments