Bhupender Bindal

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Skills

Programming	Python (Pandas, PyTorch, NumPy, Scikit-learn, Gradio), Java, SQL
Platforms and Tools	Linux, Shell (Bash), Docker, Huggingface, 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

A master's student in the Computational Sciences in Engineering course at TU Braunschweig with a keen interest in data science and programming. I have applied my skills in various projects, including working with microscopic image data from material and biology domains in my Master's thesis and Student project respectively, as well as large-scale building data in a HiWi position. Excited to apply my knowledge and continue learning through innovative projects in a professional environment.

Relevant Experience

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 repeated training and storage of training and test results and the 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

Projects

Geographical map representation showcasing data about winners of the 2019 Indian general elections (Lok Sabha elections) | GitHub | Map *Braunschweig, Germany*

Technische Universität Braunschweig *August 2023*

- Developed an interactive visualization of information about the winners of the 2019 Indian general elections on the geographical map
- 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)

Work Experience

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

Design Engineer *October 2017 - August 2021*

- Execution of layout and packaging of parking sensors in passenger cars adhering to safety standards for a Japanese automaker
- 3D modelling from styling surfaces and creation of 2D drawings of the bumper and related mounting
- Designed pneumatic and hydraulic systems in shipbuilding as a member of the Ship Systems Design team in collaboration with the other design departments