

REFERENCE LETTER

Mr. Prateek Bansal, born on December 3rd 1993 in Kota (India), has been employed at August-Wilhelm Scheer Institute as a working student since October 15th 2020.

Within the context of his work as Junior Researcher, Mr. Bansal mainly fulfills the following tasks:

- Support as a project member in the research project Datenkost:
 - Implementation of different CNN architectures for raw time-series data and implementation of different data augmentation for timeseries-data
 - Improvement of the accuracy of the image based defect detection by image augmentation and hyperparameter tuning of the underlying networking for semantic segmentation
 - Design of the database and implementation in MongoDB
 - Implementation of code for the geographic segmentation of osm street nets to assign sensor data to different road segments based on geospatial joins using mongoDB and custom, self-implemented functions by means of plain python and tools like docker as well as several geographical API's
 - Implementation of a data pipeline to update and maintain the database with information
- Work with different software, frameworks and libraries such as MongoDB, pytorch, keras, tensorflow, Docker, GitHub, numpy, pandas, Pycharm, geographical API's (Nominatim, overpass, OSRM, geopy, shapely), U-center software as well as Jupyter Notebooks
- Conducting research on topics like CNN for timeseries forecasting, data augmentation for timeseries data and self-attention distillation (SAD) in image segmentation

We learned to appreciate Mr. Bansal as a highly committed, reliable and cooperative employee, who is characterized by an extremely efficient working method. Due to his precise analytical skills and his extremely quick perception, he always finds very good solutions, even with highly complex topics. His working method is always very structured, highly results-oriented and practical. His work results are always of very good quality. He always fulfills his tasks to our fullest satisfaction.

We would like to especially emphasize his special commitment in the context of the implementation of a time-critical proof-of-concept in the project DatEnKoSt, in which Mr. Bansal contributed significantly to the overall success through the implementation of the database, the pipeline for data processing as well as the improvement of deployed Deep Learning architectures.

Mr. Bansal is highly recognized and appreciated by superiors and colleagues due to his extremely professional appearance and excellent professional competence. His behavior is exemplary at any time.

Mr. Bansal receives this reference letter at his own request. We would like to thank him for his always excellent performance and commitment and look forward to a continued successful and trusting cooperation.

Saarbrücken, June 15th 2021

August-Wilhelm Scheer Institute for digitized products and processes gGmbH



Dr. Dirk Werth

Managing and Scientific Director