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Dr. Laxmidhar Behera
Professor

To whom so ever it may concern

Date: 25 August 2020

This is to certify that Mr. Jeet Banik of Jain University has successfully completed the internship program under my guidance as part of 90 day “*Applied Machine Learning and Data Science*” program organized by CCE, IIT Kanpur.

As part of the internship, he completed the project – “Real-time facial keypoints prediction on masked/unmasked faces using Computer Vision”. As part of this project, he built a stacked end-to-end pipeline of multi-output deep learning models capable of predicting and detecting facial keypoints on masked/unmasked faces real-time during the COVID-19 pandemic. Each process was handled separately by respective deep CNN models using state-of-the-art and transfer learning approaches. The models were built in PyTorch framework with custom image augmentations. He developed skills such as - various techniques for pre-processing data, OpenCV, PyTorch, multi-output learning, deep CNNs for image classification.

His overall performance as part of the internship was *Outstanding*.

Best regards,

Dr Laxmidhar Behera

Poonam and Prabhu Goel Chair Professor

Indian Institute of Technology Kanpur