Employment Reference

I hereby write to introduce **Mr. Aniket Dattaram Phutane (Mat. Nr. 416577)** to you regarding his job application to your company. Mr. Aniket who worked as a student research assistant from May 2021 until June 2022 at our institute, "Institute for Automation of Complex Power Systems" (ACS) at our RWTH Aachen University. The ACS Institute aims at a multidisciplinary research approach with which recent advances in ICT will support future challenges in power system dynamics and automation.

During the time he was employed with us, he contributed to our project involving the application of artificial intelligence for the next generation energy systems. Particularly, he contributed in the following areas: review of research materias, elporative data analysis, development of machine/deep learning models for predictive maintenance of power systems assets, end-to-end workflow definition and implementation utilizing various libraries and tools such as Pytorch, ONNX, Git, Docker/Docker Compose etc. Additionally, he also contributed to scientific paper writing.

Due to the hardwork he exhibited as a student worker, we later offered him a masters thesis topic for the conclusion of his masters program in data science at RWTH Aachen University. The title of his thesis is "*Power Network Topology Optimization with Multi-agent Reinforcement Learing*" and was carried out from May 2023 through October 2023. The thesis focused on a multi-agent actor-critic approach to power network optimization/congestion management. Various deep learning techniques such as multi-headed attention networks and gated recurrent units were evaluated to determine the best neural network for the agent's policy. Further, the proposed solution was extensively tested on power networks of various sizes such as IEEE 14 and IEEE 36 systems. The proposed solution yielded good results on the task.

Mr. Aniket was highly motivated and eager to learn new things. We were particularly impressed by the speed with which he grasps and embraces new knowledge. He was able to acquire all the skills and knowledge needed to implement the ideas proposed in his thesis, which helped him to achieve good results. He completed the tasks assigned to him to our satisfaction. This was also the case during his time as a student worker with us. He is a respectful, reliable, and polite person. Thus, I have no hesitations in recommending Mr. Aniket. Please do not hesitate to contact me if you require further information.

With kind regards,

Univ.-Prof. Antonello Monti, Ph.D.