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Toulouse, July 27th, 2018

Re: Shikhar Seth

To whom this may concern,

This letter is to certify that M. Shikhar Seth performed a Research Internship in my laboratory from June 1<sup>st</sup>, 2018 to July 28<sup>th</sup>, 2018.

M. Seth's research project involved designing and training more intelligent and 'human-like' neural networks for visual recognition. In particular, he used natural language information (word semantics) to help make deep convolutional neural networks more robust to so-called 'adversarial attacks'. This machine learning and cognitive science project is at the forefront of current AI (Artificial Intelligence) research. To implement it, M. Seth used and adapted state-of-the-art deep learning libraries such as Tensorflow and Keras. He was well-prepared for the project, having read most of the relevant literature, and he performed beyond expectations. His excellent work allowed him to improve significantly on the current machine learning state-of-the-art in terms of model robustness. I am therefore hopeful that this project will be publishable as a research paper, or as a proceedings in an international computer vision conference.

In light of these achievements and his impeccable research ethics and focus, I give M. Shikhar Seth the highest possible recommendation.

With collegiate greetings.

Rufin VanRullen, PhD.