To whom it may concern,

I am writing to express my interest in the Israeli Council for Higher Education (CHE) competitive grant for foreign students willing to cooperate for one year with an Israeli university. My name is Ondřej Pešek. I am a Ph.D. student at the Czech Technical University in Prague, currently at the beginning of the third year of my doctoral studies.

The topic of my Ph.D. is *Possibilities of convolutional neural networks use for remote sensing image classification* and I conduct the research at the university under the supervision of Prof. Ing. Ales Cepek, CSc., and Ing. Martin Landa, Ph.D. The goal of the thesis is to perform systematic research on the possibilities of use of chosen convolutional neural network architectures on various selected use cases from the field of remote sensing. So far, two use cases were selected - the first one being classification of vegetated areas and multi-class classification of urban scenes with a focus on the differentiation between the urban and rural vegetation, the second being detection and classification of horizontal traffic signs. But the thesis should ideally contain at least three use cases.

To maximize the performance research objectivity, the focus is paid on the diversity of topics. Here the role for the Israeli cooperation comes. While already dealing with European vegetation and urban areas, Israel with its deserts could be an enriching area of interest. At the Ben Gurion University, there is a remote sensing lab with staff occasionally cooperating with experts in machine and deep learning and in their history, research using convolutional neural networks could be found. As their interest lies in topics like desertification and cloud detection over deserts utilizing also Israeli satellite system Venμs, I would consider a stay at this lab and cooperation as an ideal third case for my Ph.D. thesis.

My experience with deep learning and convolutional neural networks started with my master thesis and later I continued in the field both in my Ph.D. and professional career in parallel. However, during my studies, I attended only few real courses on deep learning – therefore, such work in harness could be also beneficient for me to lead me through some possible blank spaces that could appear. The same applies to the area of deserts as I do not have any experience with data from such areas. On the other hand, my experience and strategies could also breathe new life into tasks already dealt with in traditional ways and could result in a release of one or more papers. Therefore, I find this occasion very enriching for both sides.

Sincerely,
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