Working Student Position
Advisor: Nael Fasfous

Optimizing Binarization of Convolutional Neural Networks Using Metaheuristics

**Topic Description**
Convolutional Neural Networks (CNNs) have become the state-of-the-art in image classification and other computer vision tasks. However, such neural networks are notoriously compute and memory intensive. As researchers find more ways to approximate neural networks, one particular trend takes approximation through quantization to an extreme, namely binarization of neural networks.

**Prerequisites**
To successfully complete this project, you should have the following skills and experiences:
- Good programming skills in Python and Tensorflow
- Good knowledge of neural networks, particularly convolutional neural networks

The student is expected to be highly motivated and independent.

By completing this project, you will be able to:
- Use metaheuristics to find solutions for binarizing CNNs
- Test and evaluate BNNs resulting from the optimization process
- Compare the efficiency of different metaheuristics at solving optimization problems in the context of neural networks

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