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## Bachelor's Thesis Review

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**Title:** Face Interpretation Problems on Low Quality Images  
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The thesis presents two strategies to cope with low resolution face images for age and gender prediction: (1) Data Augmentation, (2) Super-resolution by conditional Generative Adversarial Networks (cGAN). The thesis tests a conjecture, that the second strategy yields better results. The argument is that a face image is highly structured object and that the cGAN learns the mapping from low-resolution to high-resolution images from a large number of *unlabelled* images. Despite promising results, the outcome is not conclusive. The reason is probably that the cGAN was trained from a limited training set.

Adéla worked on her thesis continuously and systematically. We had regular weekly consultations. Adéla proved her competence in understanding recent concepts in deep learning, e.g. cGANs. She understood the idea very quickly and manage to conduct preliminary experiments on super-resolution shortly afterwards. All subsequent experiments presented in the thesis are performed and recorded carefully. I believe the thesis represents a complete research report with highly promising results.

My only objection is that the progress was a bit slower than I expected. At the last semester, Adéla has probably underestimate the time needed to connect the cGAN super-resolution network with age/gender prediction convolutional network. She got slightly behind the schedule, but she finally managed to complete the valid experiment. Nevertheless, if more time was available, more data could have been used to achieve more conclusive outcome. On the other hand, the experiment was non-trivial. The two networks were using different frameworks (MatConvNet and Torch) and unifying them was not straightforward even for an experienced programmer.

I suggest evaluating the thesis as

B – very good.

Ing. Jan Čech, Ph.D.  
Thesis Advisor