

To Whom It May Concern:

Re: Daniel Varga's research on alleviating the data sparsity issue in deep discriminative models

MedInnoScan is a company specialized on medical image diagnostic analysis using deep convolutional neural network technology in computer vision. Our software can learn to automatically recognise unhealthy tissues on medical images. Our current focus is to learn to detect early-stage lung cancer on 3D chest CAT scan images. Our first results are promising, they indicate that with a sufficiently large training corpus our software can achieve acceptable detection accuracy.

Our main challenge is data collection now, however. CAT scan images for asymptomatic patients (screening) are not produced in high numbers, partially for financial and partially for patient radiation hygiene reasons, and labeling them (marking the exact location of the cancerous tissue) is laborious and requires a high level of domain expertise. We are looking for methods that can alleviate our need for data and this forms the basis of our collaboration with the Neural Network Research Group at the Alfréd Rényi Institute.

In the framework of this collaboration we collect anonymised, cleansed, and labeled lung CAT scan images from hospitals and share them with our academic partner. The Neural Network Research Group aims to develop deep learning methods that are more robust than existing ones on small datasets.

We hope that this cooperation will promote scientific research at the Rényi Institute, while at the same time turn the very important task of automated lung cancer detection into a financially feasible enterprise.

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