Problem statement

In today's society the living age is raising because of an increase of the quality of treatments and diagnosis in the medicine industry. One of the currently hyped technologies within medicine are AI for operations, diagnostics and treatments etc. Combining medical experts and doctors with the abilities of AI and Deep learning, creates secure and quality treatment for people [1].

One of those systems used today in medicine is the IBM Watson. Watson can see patterns in unstructured data, which is around 80% of the data in hospitals, at the same time create the same quality results as humans, who will eventually run out of fatigue. At the same time, it will cut down on waiting time, because of its effectiveness and at the same time cut some of the cost [2]. Consulting organizations is also helping organizations with implementing AI and robotics in the healthcare. For instance, PwC recommends both IBM's Watson and Google's DeepMind Health for the healthcare for private and the public sector [3].

However, introducing AI and deep learning into the field also comes with some challenges, such as: Who is to blame if the AI predicts wrong? Do we need new laws for AI? There is no question that we need new rules for the shift in legal points and change in responsibility. For the time being, this problem can be solved by using the healthcare AI as a decision support to the medical staff and experts and not let the AI decide on its own [4].

The above leads us to our problem statement which is to create a deep learning model, that can detect pneumonia on x-ray images. The X-ray images are of kids aged from 1-5, which makes it difficult for them to explain their own pains and symptoms, which must be spotted in an x-ray to be diagnosed. The model has a to be very precise, so it doesn't give a misdiagnosis, that can possibly cost lives. And if it works a similar approach can be used to diagnose other diseases and injuries.

[1]https://www.medicaltechnologyschools.com/medical-lab-technician/top-new-health-technologies

[2]https://www.ibm.com/watson-health/learn/artificial-intelligence-medicine

[3]https://www.pwc.com/gx/en/industries/healthcare/publications/ai-robotics-new-health/transforming-healthcare.html

[4]https://towardsdatascience.com/artificial-intelligence-deep-learning-for-medical-diagnosis-9561f7a4e5f