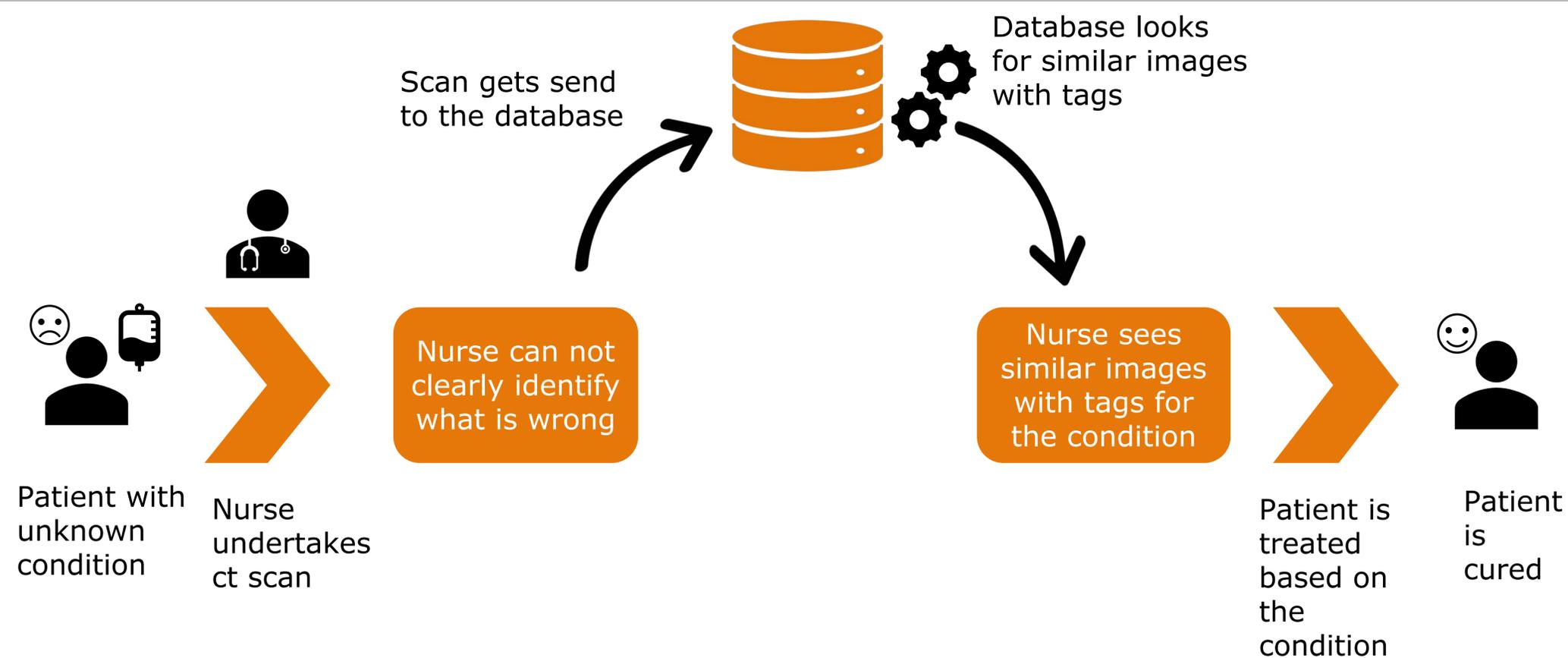


# Deep Hashing for a fast Medical Image Database for CT Evaluation

**CT Scans** nowadays always need an expert to evaluate which symptoms can be seen on the scan. This however limits the amount of cases that can be processed in a certain amount of time. To make it possible for more personnel to be able to process CT Scans in order to determine the illness or the injury, one approach could be to build an medical image Database. This database would be required to be able to search similar images by example as presented in the presentation given by Begüm Demir.

**The Database** consists of a large quantity of annotated medical images. These need to be annotated once by experts in order to allow a similarity search to later on give useful information. For supporting large amounts of different patient conditions and to support a large quantity of images as a knowledge base, the Database will use deep hashing in order to efficiently find similar images. In addition the inclusion of Bi-Temporal Change-Queries could for example allow to detect changes that might be early forms of cancer.



**The Goal** of this research project would be to find an architecture based on deep hashing for image description and retrieval in order to be able to support the mentioned Database functions. This hashing algorithm would be based on an algorithm used for content based image retrieval as described in [1].

In addition tests would be required in order to see if a deep hashing model can provide the necessary accuracy in order to support diagnosis based on the result returned by a similarity search. Furthermore it would be needed to see if in a realistic scenario responses would be fast enough to actually speed up the process of diagnosing a patient.

[1]Metric-Learning based Deep Hashing Network for Content Based Retrieval of Remote Sensing Images; Subhankar Roy, Enver Sangineto, Begüm Demir, Nicu Sebe; CoRR; 2019