

Peter van Ooijen

Short Biography:

Peter van Ooijen is a technical computer scientist who specialized Computer Graphics. With this background he started to work in the field of Medical Visualization in 1996. Since then he has held several positions in this area. Currently he is a full Professor at the department of Radiation Oncology in the field of AI in Radiotherapy and coordinator of the Machine Learning Lab of the Data Science Center in Health (DASH), both at the University Medical Center Groningen in the Netherlands. He co-authored more than 190 PubMed enlisted papers and over 30 book chapters.

Abstract:

Over the past years, Artificial Intelligence (AI) has played an ever-increasing role in our daily lives. From suggestion algorithms when shopping to self-driving cars and from suggestions what music to listen to to face recognition to get into the swimming pool, practical uses of AI are everywhere nowadays.

One of the major drivers behind these new possibilities has been a category of AI methods called deep learning. This deep learning, and more specifically the Convolutional Neural Network (CNN), was the game changer that allowed computers to perform tasks on images at an accuracy that was previously not possible. The commonly used examples are classification of images if they are showing a cat or a dog. These techniques are generic and can be trained on any image set. Therefore, not soon after the first success, these developments were also quickly adopted in the field of medical imaging.

In this presentation we will explore the different application areas of AI and deep learning for medical images starting at the basics and moving to the actual application.

We will look at image classification and segmentation, but also at more novel applications such as the generation of synthetic data and the implementation of predictive models that try to predict future events.