

## Medical Imaging Data Analysis Using 3D Deep Learning Models Towards Improving the Individual Treatment Plans



<u>Kamila Kalecińska<sup>1</sup></u>, Tomasz Fiutowski<sup>1</sup>, Paweł Jurgielewicz<sup>1</sup>, Damian Kabat<sup>2</sup>, Maciej Kopeć<sup>1</sup>, Łukasz Kapłon<sup>2</sup>, Stefan Koperny<sup>1</sup>, Dagmara Kulig<sup>2</sup>, Jakub Moroń<sup>1</sup>, Gabriel Moskal<sup>2</sup>, Antoni Ruciński<sup>3</sup>, Piotr Wiącek<sup>1</sup>, Bartosz Mindur,<sup>1</sup> and Tomasz Szumlak<sup>1</sup>



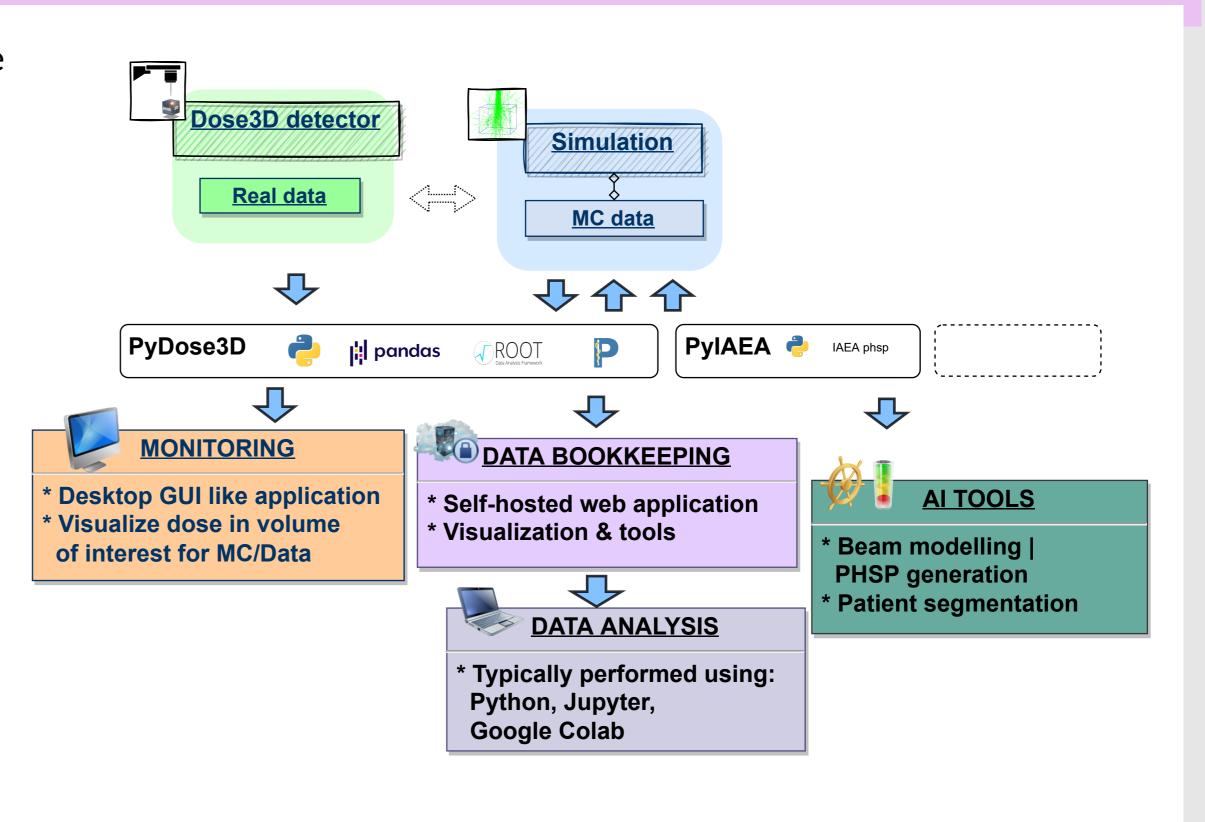




<sup>1</sup>AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow, Poland <sup>2</sup>Maria Sklodowska-Curie National Research Institute of Oncology Krakow Branch, Department of Medical Physics, Krakow, Poland <sup>3</sup>Polish Academy of Sciences, Institute of Nuclear Physics, Krakow, Poland

## **Poster Summary**

- ► TEAM NET Dose3D Project is being supported by Machine Learning (ML) techniques in the process of building the tool for geometry delivery for 3D detector.
- ► Geometry for detector is in the form of a 3D Computed Tomography (CT) scan of the human body with highly precise delineation of affected area and surrounding organs.
- The process of extracting the desired object from a medical image (segmentation) is performed by automatic tool based on deep learning model.
- We presented a preliminary results of training Generative Adversarial Networks (GANs) model for data augmentation purposes
- ► Medical data preprocessing and model training is supported by using the most advanced technologies for healthcare: NVIDIA Clara and MONAI.



dose3d.fis.agh.edu.pl kamila.kalecinska@agh.edu.pl