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Support for digitalization and use of AI in RayStation

The capacity to automate treatment planning tasks is demanded from the user community. Main motivation is to save time and to ensure consistency in treatments and followup. Going forward, we see that clinic specific configurable automation is one of several prerequisites for bringing adaptive therapy into routine clinical use. The latter need applies both for typical treatment planning system tasks as well as tasks in the oncology information system domain (OIS).

Currently the RayStation treatment planning system and the RayCare oncology system address these needs by:

- ☑ Use of AI technology (aka Machine learning or ML) for:
 - i. Segmentation (set anatomy models provided)
 - ii. Planning (proton PBS and photon VMAT)
- ☑ Coherent scripting support (python) spanning over both the TPS and OIS domains
- ☑ User configurable workflows

A brief description of the above is provided.

The need to automation is equally relevant in the research domain. As an example, we highlight a recent evaluation of deep learning segmentation (DLS) performance on a mice data set comparing micro-RayStation DLS with an academical DLS software (the full work will be presented at the SMART meeting by Justin Malimban, UMCG-PARTREC, Groningen, the Netherlands).

Primary author: TRANEUS, Erik (RaySearch Laboratories AB)

Presenter: TRANEUS, Erik (RaySearch Laboratories AB)

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