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ITEA 3 is a EUREKA strategic ICT cluster programme

Exploitable Results by Third Parties

ITEA3 16016 STARLIT

Project details

Project leader:	Frank van der Linden
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Name: Head & NeckSTEP M		
Input(s):	Main feature(s)	Output(s):
▪ N/A	▪ Positioning of head and neck region during diagnosis and therapy in the Elekta Unity with iCAST mask system	▪ N/A

Unique Selling Proposition(s):	▪ Only Head & Neck positioning device for iCAST masks officially certified for use with Elekta Unity
Integration constraint(s):	▪ Can be integrated in many MRI/CT/Linac workflows, where Head/Neck fixation with the iCAST mask system is desired
Intended user(s):	▪ Clinical personnel at radiological facilities
Provider:	▪ IT-V Medizintechnik GmbH
Contact point:	▪ office@it-v.net
Condition(s) for reuse:	▪ commercial distribution

Latest update: 17 July 2020

Name: HeadSTEP MRL PushPIN		
Input(s):	Main feature(s)	Output(s):
▪ N/A	▪ Positioning of head and neck region during diagnosis and therapy in the Elekta Unity with PushPIN masks	▪ N/A

Unique Selling Proposition(s):	▪ Only Head & Neck positioning device for PushPIN masks officially certified for use with Elekta Unity
Integration constraint(s):	▪ Can be integrated in many MRI/CT/Linac workflows, where Head/Neck fixation with PushPIN masks is desired
Intended user(s):	▪ Clinical personnel at radiological facilities
Provider:	▪ IT-V Medizintechnik GmbH
Contact point:	▪ office@it-v.net
Condition(s) for reuse:	▪ commercial distribution

Latest update: 17 July 2020

Name: Low Latency MR Motion Phantom for MR-Linac Beam On/Off Latency Measurement		
Input(s):	Main feature(s)	Output(s):
▪ Beam On/Off Gating Signal	▪ Track moving dose target as it moves in and out of target volume	▪ Measure and report beam on and off latency times separately in ms with histograms

Unique Selling Proposition(s):	▪ Provides capability to directly measure MR Linac Beam On/Off system latency without an oscilloscope when tracking a moving target as it moves in and out of a stationary pre-defined target volume
Integration constraint(s):	▪ Requires beam on/off gating system signal as an input and real time MR motion tracking of a moving target provided by the Modus QA MRI 4D Motion Phantom and associated accessories
Intended user(s):	▪ MR Linac Field Service/Installation Engineers and Clinical Physicist performing commissioning, acceptance testing, and AAPM TG recommended regular latency measurement QA
Provider:	▪ Modus QA
Contact point:	▪ info@modusqa.com
Condition(s) for reuse:	▪ Commercial distribution

Friday, September 4, 2020

Name: Deformable Tumour Target Insert for Modus QA MRI 4D Motion Phantom		
Input(s):	Main feature(s)	Output(s):
▪ 2D/3D MR/CT/MV Imaging on an MR/CT/Linac System	▪ Provides a 4D deformable MR imaging target to simulate physiological motion and deformation of tumour targets as a QA and validation tool for deformable motion tracking in adaptive real-time RT beam therapy	▪ 2D/3D/4D Images of a Deformable Target from MR/CT/Linac for QA of 4D motion tracking algorithms
Unique Selling Proposition(s):	▪ The world's first and only MR/CT/MV visible 4D deformable tumour model for 4D motion tracking QA	
Integration constraint(s):	▪ Can be integrated on any MR or MR-Linac with a Modus QA Quasar MRI 4D Motion Phantom	
Intended user(s):	▪ MR Linac R&D personnel and MR Linac Early Adapters developing next generation 4D motion and adaptive beam tracking methods and algorithms, QA for same	
Provider:	▪ Modus QA	
Contact point:	▪ ebarberi@modusqa.com	
Condition(s) for reuse:	▪ Commercial distribution when released, in beta pre-release currently	

Friday, September 4, 2020

Name: Visual Scoring Tool		
Input(s):	Main feature(s)	Output(s):
▪ Medical Images ▪ Experiment rating parameters	▪ Create a visual scoring experiment using user-defined parameters to assess and compare medical image quality ▪ Perform the visual scoring experiment	▪ A .csv file containing a comprehensive set of experiment results

Unique Selling Proposition(s):	▪ Flexible creation of visual scoring experiments between various types of medical images, including CT scans, MRI scans, perfusion images, and 4D MRI scans. ▪ Arbitrary experiment creation including custom experiment parameters, and the option to select single image assessment, and absolute and relative scoring between two images. ▪ The resulting experiment .csv file includes a large variety of metrics including the image scores, required time to perform the scoring for each image, and the image slice and/or timepoint that was shown when the rating was performed. ▪ By performing image quality assessments using the Visual Scoring Tool, image tuning parameters can be optimized, including image acquisition parameters between different imaging techniques.
Integration constraint(s):	▪ No other libraries needed for use. ▪ Installation is performed using a provided executable. ▪ License necessary for use.
Intended user(s):	▪ Users of medical images, including radiologists, radiation oncologists, medical physicists and researchers, looking to perform objective comparisons of medical image quality. These comparisons can be used to further tune and optimize the image acquisition parameters.
Provider:	▪ Quantib
Contact point:	▪ Jorrit Glastra - j.glastra@quantib.com
Condition(s) for reuse:	▪ Licensing

Latest update: 4 September 2020

Name: Quantib deep-learning framework		
Input(s):	Main feature(s)	Output(s):
▪ Medical images ▪ Associated label images	▪ The Quantib deep-learning framework facilitates straightforward training of neural networks ▪ Perform model inference on provided medical images ▪ The architecture of the framework allows easy extension of functionality as well as adapting new network topologies.	▪ A trained neural network ▪ Resulting label image after applying model inference

Unique Selling Proposition(s):	▪ The Quantib deep-learning framework facilitates the straightforward training of neural networks by 1) Pre-processing all input images to a consistent image spacing necessary for training, 2) Augmenting the input images to increase variability, 3) Allowing the user to set arbitrary hyperparameters for training, including the used optimizers, learning rate and number of epochs for training. ▪ The trained neural networks, created in the previous step, can be applied to input images to predict the corresponding labels.
Integration constraint(s):	▪ Various Python libraries are required to use the deep-learning framework, including NumPy, SimpleITK, Keras and TensorFlow. ▪ Because model training is computationally expensive, high quality Graphics Processing Units (GPU's) are necessary. ▪ The training of neural networks requires large amounts of (consistent) medical image data.
Intended user(s):	▪ Researchers / developers that have access to medical images seeking to develop AI solutions.
Provider:	▪ Quantib
Contact point:	▪ Jorrit Glastra - j.glastra@quantib.com
Condition(s) for reuse:	▪ Licensing

Latest update: 4 September 2020