

Press release

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Basic information

Name: Jakob Toftegaard Email: jaktofte@rm.dk Phone: 30690864

Department of:

Main supervisor: Per Rugaard Poulsen

Title of dissertation: Advanced techniques for motion mitigation in radiotherapy imaging and treatment delivery

Date for defence: 8. juni 2017 at (time of day): 14:00 Place: Aarhus Universitetshospital
K-Auditorium
Nørrebrogade 44, bygn. 7 kælderens
8000 Aarhus C

Press release (Danish)

Avanceret stråleterapi til håndtering af bevægelige kræftknuder

Et nyt ph.d. projekt fra Aarhus Universitet undersøger hvorledes moderne stråleterapiteknikker kan forbedre behandlingen af kræftpatienter. Ved behandling med stråleterapi er præcisionen begrænset af flere patient- og behandlingsapparat-specifikke fejlkilder. For at sikre høj stråledosis til kræftcellerne, forstørres det bestrålede område, hvilket kan resultere i øgede bivirkninger. Projektet undersøger muligheder for optimering af bestråling af kræftceller og at minimere bivirkninger. Projektet har bestået af to delprojekter hvor første delprojekt har været at udvikle og teste en metode til at minimere artefakter i CT-skanninger fra de guldmarkører der kan benyttes til opsætning af patienter der modtager høj præcisionsstrålebehandling. To avancerede teknikker til at følge og adaptere kræftknudens bevægelse i realtid er at modvirke bevægelse med leget som patienten ligger på eller følge kræftknuden med strålefeltet. I sidste del af projektet er mulige forbedringer til disse teknikker blevet undersøgt ved hjælp af simuleringer. Projektet er gennemført af Jakob Toftegaard, der forsvare det d. 08/06.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 08/06 kl. 14 i K-Auditorium, Aarhus Universitets Hospital, Nørrebrogade 44, Aarhus C. Titlen på projektet er "Advanced techniques for motion mitigation in radiotherapy imaging and treatment delivery". Yderligere oplysninger: Ph.d.-studerende Jakob Toftegaard, e-mail: jaktofte@rm.dk, tlf. 30690864

Bedømmelsesudvalg:

Brita Singers Sørensen, Associate Professor, PhD Department of Experimental Clinical Oncology
Aarhus University Hospital, Denmark (Chairman)

Amit Sawant, Associate Professor, PhD Department of Radiation Oncology University of Maryland,
Baltimore, MD

Carsten Brink, Professor, PhD Department of Clinical Research University of Southern Denmark,
Odense, Denmark

Press release (English)

Advanced techniques for motion mitigation in radiotherapy imaging and treatment delivery

A new Ph.D. project from Aarhus University investigate how advanced radiotherapy technique can improve cancer treatment. Radiotherapy of cancer is limited by uncertainties related to patient

geometry and machine precision. To ensure high radiation dose to the full tumor target the treated volume is increased with the potential drawback of increased toxicity. This project investigates the techniques to optimize radiotherapy of moving tumor and reduce the toxicity. The project is divided into two subprojects. The first project was to develop and test a new method for reducing artifact in CT-scans from gold markers used for patient setup in high precision radiotherapy. Two advanced techniques for following and adapting real-time tumor motion are to counteract the motion with the treatment couch or by adjusting the treatment beam. In the last subproject several improvements to these two techniques were investigated by large-scale simulations. The project was carried out by Jakob Toftegaard, who is defending her/his dissertation on 06/08.

The defence is public and takes place on 06/08 at 14 in K-Auditorium, Aarhus University Hospital, Nørrebrogade 44, Aarhus C. The title of the project is Advanced techniques for motion mitigation in radiotherapy imaging and treatment delivery. For more information, please contact PhD student Jakob Toftegaard, email: jaktofte@rm.dk, Phone +45 30690864.

Assessment committee:

Brita Singers Sørensen, Associate Professor, PhD Department of Experimental Clinical Oncology Aarhus University Hospital, Denmark (Chairman)

Amit Sawant, Associate Professor, PhD Department of Radiation Oncology University of Maryland, Baltimore, MD

Carsten Brink, Professor, PhD Department of Clinical Research University of Southern Denmark, Odense, Denmark

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