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Deep learning for automatic segmentation of tumors on MRI

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LIST OF PUBLICATIONS

This thesis

Oropharyngeal primary tumor segmentation for radiotherapy planning on magnetic resonance imaging using deep learning

Rodríguez Outeiral R, Bos P, Al-Mamgani A, Jasperse B, Simões R, van der Heide UA. *Phys Imaging Radiat Oncol.* 19:39–44. (2021)

doi: 10.1016/j.phro.2021.06.005

Strategies for tackling the class imbalance problem of oropharyngeal primary tumor segmentation on magnetic resonance imaging

Rodríguez Outeiral R, Bos P, van der Hulst HJ, Al-Mamgani A, Jasperse B, Simões R, et al. *Phys Imaging Radiat Oncol.* 23:144–9 (2022)

doi: 10.1016/j.phro.2022.08.005

Deep learning for segmentation of the cervical cancer gross tumor volume on magnetic resonance imaging for brachytherapy.

Rodríguez Outeiral R, González PJ, Schaake EE, van der Heide UA, Simões R. *Radiat Oncol.* 1:18. (2023)

doi: 10.1186/s13014-023-02283-8

A network score-based metric to optimize the quality assurance of automatic radiotherapy target segmentations

Rodríguez Outeiral R, Ferreira Silvério N, González PJ, Schaake EE, Janssen T, van der Heide UA, Simões R. *Phys Imaging Radiat Oncol.* 28. (2023)

doi: 10.1016/j.phro.2023.100500

Other publications

Response letter to Wahid et al. Regarding our publication “a network score-based metric to optimize the quality assurance of automatic radiotherapy target segmentations”

Rodríguez Outeiral R, Ferreira Silvério N, González PJ, Schaake EE, Janssen T, van der Heide UA, Simões R. *Phys Imaging Radiat Oncol.* 28. (2023)

doi: 10.1016/j.phro.2023.100528

Realce de imágenes mamográficas para su análisis y clasificación mediante un sistema CAD basado en redes neuronales convolucionales.

Rodríguez R, Planchuelo A, Yébenes B, Ríos B, Sánchez C

XXXIV Congreso anual de la Sociedad Española de Ingeniería Biomédica. (2016)

ISBN: 978-84-9048-531-6.

CURRICULUM VITAE

I am Roque Rodríguez Outeiral and I was born in Vigo on the 29th of April 1994. I was raised in the same city, where I also attended high school. When I was 18 years old, I moved to Madrid to study biomedical engineering at the Polytechnical University of Madrid (UPM). In these studies, I specialized in the track of medical imaging. Furthermore, as my bachelor's final thesis I worked on my first project on the topic of deep learning applied to medical image analysis, which would later be part of my first publication. In 2016, I relocated to Barcelona, where I enrolled in the masters of computer vision at the Autonomous University of Barcelona (UAB). During these studies, I delved in both the theory and application of deep learning for different computer vision tasks. After completing the masters, I moved to Aachen (Germany) to work as a research intern in Nuance communications. In this role, I was responsible for implementing deep learning techniques for the automatic classification of lesions on X-ray images. In 2018, I started my PhD at the Radiation Oncology department of the Netherlands Cancer Institute (NKI-AvL) in Amsterdam. In this thesis, I describe the research conducted during this PhD on the implementation of deep learning techniques to automatically segment tumors on MRI images. Currently, I am working in Agendia as a deep learning engineer. In this position, I am implementing different deep learning techniques for the analysis of pathology images, with the aim of improving the treatment of breast cancer patients.