Maastricht University

Prognostic and Prediction Modelling with Radiomics for Non-Small Cell Lung Cancer

Citation for published version (APA):

Patil, R. B. (2020). *Prognostic and Prediction Modelling with Radiomics for Non-Small Cell Lung Cancer*. Maastricht University. https://doi.org/10.26481/dis.20201006rp

Document status and date:
Published: 01/01/2020

DOI:
10.26481/dis.20201006rp

Document Version:
Publisher's PDF, also known as Version of record

Please check the document version of this publication:

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
• The final author version and the galley proof are versions of the publication after peer review.
• The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy
If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Download date: 25 Oct. 2020

Prognostic and Prediction Modelling with Radiomics for Non-Small Cell Lung Cancer

PROPOSITIONS

1. With the increasing burden on healthcare both in terms of patient load as well as the tremendous growth of the imaging data, there is a need for the healthcare industry to adopt advanced and newer solutions to improve the patient experience, affordability and access to care, specifically cancer care.
2. There is strong need to build high quality prognostics and predictive models in cancer care, so that these can be rapidly adapted into the clinical practice.
3. Identification and delineation of the pathology and anatomy of interest is vital as well as laborious, there is a need to automate the process and improve the efficiency of the workflow.
4. With need of automation in the cancer care to reduce the burden on oncologists and reduce inter/intra-observer segmentation variations, Deep Learning based approaches to segment the region of the Lung and Gross Tumor Volume (GTV) without seed point initialization are required and possible (this thesis).
5. Identification of the histology of NSCLC is important for care planning and it is possible to identify histology using imaging rather than biopsies (this thesis).
6. Fractals can play a vital role in Radiomics, providing information not only about the tumor structure, but also can help in characterization of the tumor (this thesis).
7. A survival model built using Radiomics features combined with clinical data of the patient provides a better survival prediction (this thesis).
8. Centralized computing solutions in the cloud is evolving towards a combination of distributed computing, edge computing and central computing.
9. Many of the concepts, models and algorithms developed in the thesis are being piloted at hospital sites and integrated into the Philips Digital platform for monetization (valorization).

10. Good data governance and stewardship are key to the success of deep learning models in healthcare.