

# Machine learning applications for Radiomics

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Propositions accompanying the thesis

**Machine learning applications for Radiomics:  
Towards robust non-invasive predictors in clinical oncology**

**Chintan Parmar**

Maastricht, 18 May 2017

1. Medical imaging is one of the major factors informing medical science and treatment (related to the field of science).
2. Radiomics, a high throughput, medical image mining approach hypothesizes that with the enriched knowledgebase of image processing and computer vision, different phenotypic characteristics of tumors, including intra/inter tumor heterogeneity, can be quantified in terms of various imaging features (this thesis).
3. Radiomics can have a large clinical impact, as imaging is used in routine practice worldwide, providing a method that can quantify and monitor phenotypic changes during treatment (this thesis).
4. Full utilization of the cancer-specific characteristics of radiomic features may further improve the prognosis in cancer care (this thesis).
5. Identification of optimal machine learning methods for radiomics based prognostic analyses could broaden the scope of radiomics in precision oncology and cancer care (this thesis and valorization).
6. The question of whether a computer can think is no more interesting than the question of whether a submarine can swim –Edsger W. Dijkstra (related to the field of science).
7. Evolve solutions; when you find a good one, don't stop - David Eagleman (related to the field of science)
8. Science is a very slow and rigorous process that does not lend itself to sweeping conclusions –Last week Tonight with John Oliver.
9. A single dream is more powerful than a thousand realities - Nathaniel Hawthorne.
10. Live as if you were to die tomorrow. Learn as if you were to live forever –M. K. Gandhi.
11. All religions, arts and sciences are branches of the same tree. All these aspirations are directed toward ennobling man's life, lifting it from the sphere of mere physical existence and leading the individual towards freedom - Albert Einstein