

**DOCTORAL CANDIDATE:** Andreas Kleppe  
**DEGREE:** Philosophiae Doctor  
**FACULTY:** The Faculty of Mathematics and Natural Sciences  
**DEPARTMENT:** Department of Informatics  
**AREA OF EXPERTISE:** Biomedical image analysis  
**SUPERVISORS:** Fritz Albrechtsen and Håvard E. Danielsen  
**DATE OF DISPUTATION:** 19<sup>th</sup> of September 2017

**DISSERTATION TITLE:** *Automatic detection of aberrant chromatin structure predicts prognosis in several cancer types*

We developed an automatic method which analyses how the genome is structured in human cells and found a consistent relationship between structuring and tumour aggressiveness for several different cancer types, suggesting that the genome structure signifies how lethal the individual tumours are. This finding has the potential to impact on treatment of many cancer patients, which stands in sharp contrast to other modern advances in cancer research which often address relatively few patients.

Other contributions of this work include enhanced robustness of the automatic detection method and exploration of additional improvements. The methods were rigorously validated which makes the findings scientifically trustworthy. Additional evaluations of interaction between the method, the treatments and patient survival are needed before implementation in the clinic.