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Advancements in cardiovascular imaging: serial coronary CT and myocardial CT perfusion quantification techniques

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Stellingen behorende bij het proefschrift getiteld

**Advancements in Cardiovascular Imaging:
Serial coronary CT and myocardial CT
perfusion quantification techniques**

1. Voronoi-based segmentation applied to CCTA in combination with adenosine stress CTP allows for full quantitative mapping between coronary artery lesions and corresponding myocardial perfusion defects. (This thesis)
2. Applying vessel-specific, scan-quality-based thresholds to serial CCTA allows for the detection of plaque progression or regression between baseline and follow-up scans. (This thesis)
3. Quantitative plaque features have been shown to be more predictive of increased plaque progression and higher likelihood of MACE as opposed to qualitative plaque features. (This thesis)
4. The degree of coronary stenosis impacts the relationship between CCTA derived myocardial area at risk and adenosine stress CTP derived ischemic burden. (This thesis)
5. CCTA with machine learning is a viable alternative for LV quantitative assessment, especially when MRI is contraindicated. (This thesis)
6. *“If we knew what we were doing, it would not be called research.”* (Albert Einstein, 1920s). Advancing in new imaging techniques means working in the unknown, not the already certain.
7. *“Healing is a matter of time, but it is sometimes also a matter of opportunity.”* (Hippocrates 460-370BC). Early detection of plaque progression can provide “opportunity”
8. *“You can’t always get what you want, but if you try sometimes, you just might find you get what you need.”* (Mick Jagger, 1969). CCTA can be used when MRI is wanted but not needed.
9. *“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten.”* (Bill Gates, 1995). Upcoming technology such as AI and photon counting CT is likely to be a major game changer in cardiovascular imaging.
10. *“One never notices what has been done; one can only see what remains to be done.”* (Marie Curie, 1923). Although the techniques demonstrated in this thesis are promising they inevitably need ongoing scientific refinement.