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Automatic quantification of intravascular optical coherence tomography

Wang, A.

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Author: Wang, Ancong

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PROPOSITIONS

1. A guide wire is supposed to facilitate invasive image acquisition, but in some cases, it turns out to be a major disturbance. [this thesis]
2. For accurate Bioresorbable Vascular Scaffold (BVS) analysis, intravascular optical coherence tomography is currently the most suitable imaging technique due to its high resolution and the translucency of polymeric BVS struts for near infrared light. [this thesis]
3. The stent cell size and the side branch access through a stent, which can be used to evaluate the stent designs with respect to the flexibility, comfort and support ability, are naturally 3D features and hence should be measured in 3D space. [this thesis]
4. Despite that IVOCT is one of the best imaging modalities for intuitive visualization of fine coronary vascular structures as well as accurate and reproducible quantifications, it still has drawbacks and is insufficient to provide all necessary information. [this thesis]
5. Near-infrared spectroscopy may be an appropriate tool to stratify risk in all patients.
6. Medical image datasets, especially public ones, are as important as novel image processing algorithm developments.
7. The image processing field is where computers have had greatest medical impact.
8. Image registration can lead to a comprehensive and objective understanding of coronary disease and may guide the intervention effectively, especially for patients with complex lesions.
9. Modern approaches require the combination of multiple imaging modalities to assess lesion characteristics, analyze the blood flow and optimize stent placement with respect to optimal stent selection, deployment and expansion.
10. 天下皆知取之为取，而莫知与之为取。——《后汉书》
It is commonly known that to take is a gain. Little do they know that to give can also be a gain. (from the Book of Later Han, about 400 AD)
11. 君子欲讷于言而敏于行。——《论语》
It is desirable for a superior man to be slow in word and prompt in action. (by Confucius, 551-479 BC)
12. Cardiac imaging technique development is driven by fast food, tobacco and pressure.