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Improved Localization of Coronary Stents Based on Image Enhancement

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   Stent thrombosis remains a life threatening complication of percutaneous coronary interventions. The angiographic result of stent implantation is a high predictive factor of stent thrombosis. Nevertheless accurate placement of stents is hindered by the fact that most stents are only slightly radiopaque and hence difficult to see in typical coronary X-ray images. In this work, we propose a simple image guidance approach, making it easier to achieve optimum and complete intracoronary stent deployment. The main idea is to enhance the visibility of stents using an iterative landmark-based registration. After frame averaging over the series of registered frames, the resultant stent image is post processed to increase the contrast visibility. Preliminary simulation results show that despite its low computational cost, our method significantly improves the visibility of stent edge struts.

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