Thank you very much to all reviewers for helpful comments and suggestions!

REVIEWER 1:
Comments for the authors:

2.1
a) Typo "plannend" corrected
b) insert "the" in "by operating" corrected

2.2
Correction of major deformations
It is unclear how the torsion is used to "undistort the tracking data". The (positive or negative) angle differences along the axis as provided by the fitting function are added to the tracking data points after rescaling of the vessel length. The text in the paper has been changed accordingly.

The central figure of Figure 3 does not really aid the explanation. The effect of the deformation correction can be seen in the matching of the upper part of the D2 vessel path. Additional explanation has been added to the figure caption.

Vessel identification
a) A full explanation of the parameters used should be presented, particularly as they are referred to later in the evaluation. More details have been included into this section.
b) Typo "narrwoness" corrected

3.1
a) I dislike the use of fractions of landmarks as this is meaningless. Thank you for this suggestion, the numbers in the text have been changed.
b) When referring to the "right vessel" and "right part" it may be better to use the term "correct" to avoid confusion with left and right. corrected
c) What does "majority of seven" mean. This needs to be quantified. Quantification is given in the preceding sentence (the majority of seven refers to the ten cases), but the text has been changed for clarification.
d) Without knowing the number of parameters 67% is meaningless. The number of used parameters was included.

3.2
a) Typo "lenght" corrected
b) 3-4 minutes sounds like a long time, especially during cardiac surgery. Further explanation of what needs to be done during this phase would help justify it. Would this then have to be repeated if the heart is moved? More details have been added to the text.
c) Could you provide more details of the "medical reasons" the bypass was not grafted to the planned location? Some explanation has been included.
d) How far away might the graft site have been from the planned site without the use of the guidance system? Without some metrics such as this, it is hard to judge what the real benefits of system to surgeons or patients. Of course, it would be interesting to compare the accuracy of the computer-assisted intraoperative navigation during open heart CABG at the arrested heart with results from traditional open heart CABG surgery. Unfortunately, such a comparison is not possible as no comparable data exist from traditional open heart surgery. The main reason for this is that in current clinical practise CABG anastomoses are not grafted at the position on the target vessel they would have been situated best according to preoperative plans but either where the target vessel is visible best or where the surgeon believes may be the best alternative depending on his experience and skills. The aim in computer-assisted surgery is quite different. Here, the purpose is to identify the position of a preopartively planned surgical target during CABG surgery and to graft the bypass exactly at that planned position on the target vessel path. More information has been included in the paper.
REVIEWER 2:
Comments for the authors:
Detailed comments:
* Abstract: anasomosis should be anastomosis corrected
* p. 2: ischaemich should ischaemic corrected
* p. 2: The last paragraph contains several spelling and grammatical mistakes the text has been corrected
* p. 3, second paragraph: What do you mean here with ischaemia? Do you mean that the heart is stopped? If so, please say so. The same applies to the use of this term in the rest of the manuscript.
The ischaemic time of the heart starts as soon as the patient is connected to the heat-lung-machine and the heart is stopped. During ischaemia, we speak of ischaemic heart (referring to ischaemia) or arrested heart (referring to the heart being stopped). The term ischaemic heart has been replaced with arrested heart in the whole manuscript.
* p. 4, rigid registration: How are the landmark correspondences established? More details have been added to the text.
* Figure 3: What do the two images on the left show? The figure caption has been changed
* p. 5, weighted ICP: How are the weights determined? Manually?
The weights are chosen interactively from several models depending on the location and visibility of the target vessel. This has been clarified in the text
* p. 6, vessel identification: Several aspects are unclear. How are the vessels modelled as splines? How many parameters are used to define the vessel? Define these parameters. The paragraph on the vessel identification tool has been extended.
* p. 7: Give more details about the CT images and how they were acquired. Additional information concerning the contrast enhancement, the type of the CT scanner and the usage of the CT images has been included in the paragraph.
* p. 8: When the parameters disagree on the vessel or vessel part, can an overall decision be made based on what the majority of the parameters indicate? Yes. Depending on our studies, the decision can be made on the majority of the parameters.
* p. 8: length should length corrected
* p. 9: How do the results compare to results without image guidance? Unfortunately, such a comparison is not possible as no comparable data from conventional CABG exist. A paragraph discussing this has been added to the navigation results section.

REVIEWER 3:
Operative strategies are changing, is the whole system applicable for beating heart surgery? The system developed is applicable for CABG on both the beating and the arrested heart. However, the methods used are different. Thus, only the part system concerning the arrested heart is described here, a description of the part concerning beating heart surgery is cited and can be found in the references.
Where was the counter part of the cardio pointer mounted, which receives and records the signal? It is mounted on a moveable robot arm. This has been added to the text.
Did any disturbance occur during navigation? Disturbances occurred only during the registration process. This has been described in the text.
Were the surgeons familiar with imaging tools or tracking process? At the beginning, they were not familiar with it. We recognised a steep learning curve during the first 5 surgeries.