Current state of data-based gating technology in PET imaging

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Dear Sir,

I would like to add a comment to a recent article published in EJNMMI entitled “Detection of respiratory tumour motion using intrinsic list mode-driven gating in positron emission tomography” by Büther et al. [1]. This article makes a significant contribution to an area that needs development. I would like to point out, however, that there exists additional work that has been presented on data-based gating algorithms in PET, as this is relevant to the context of the article and the future aims of the community.

Previous publications and presentations have laid the groundwork for the geometric sensitivity gating method [2] and have offered alternative approaches to data-based gating [3–8]. These approaches do not suffer from some of the negative issues mentioned in the article: dependence on lesion location, necessity for a definable region of high uptake, and loss of truncated information. Nor do they require operator interaction for lesion delineation or frequency window determination. In addition, our recent study directly compared the geometric sensitivity gating method (the automated method used by Büther et al.) with more advanced automated algorithms, and found substantial differences in quality [7].

Büther et al. did produce good science that is laying important groundwork for the application of data-based gating, and the accompanying references might add to

the current understanding of this young and promising subfield.

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