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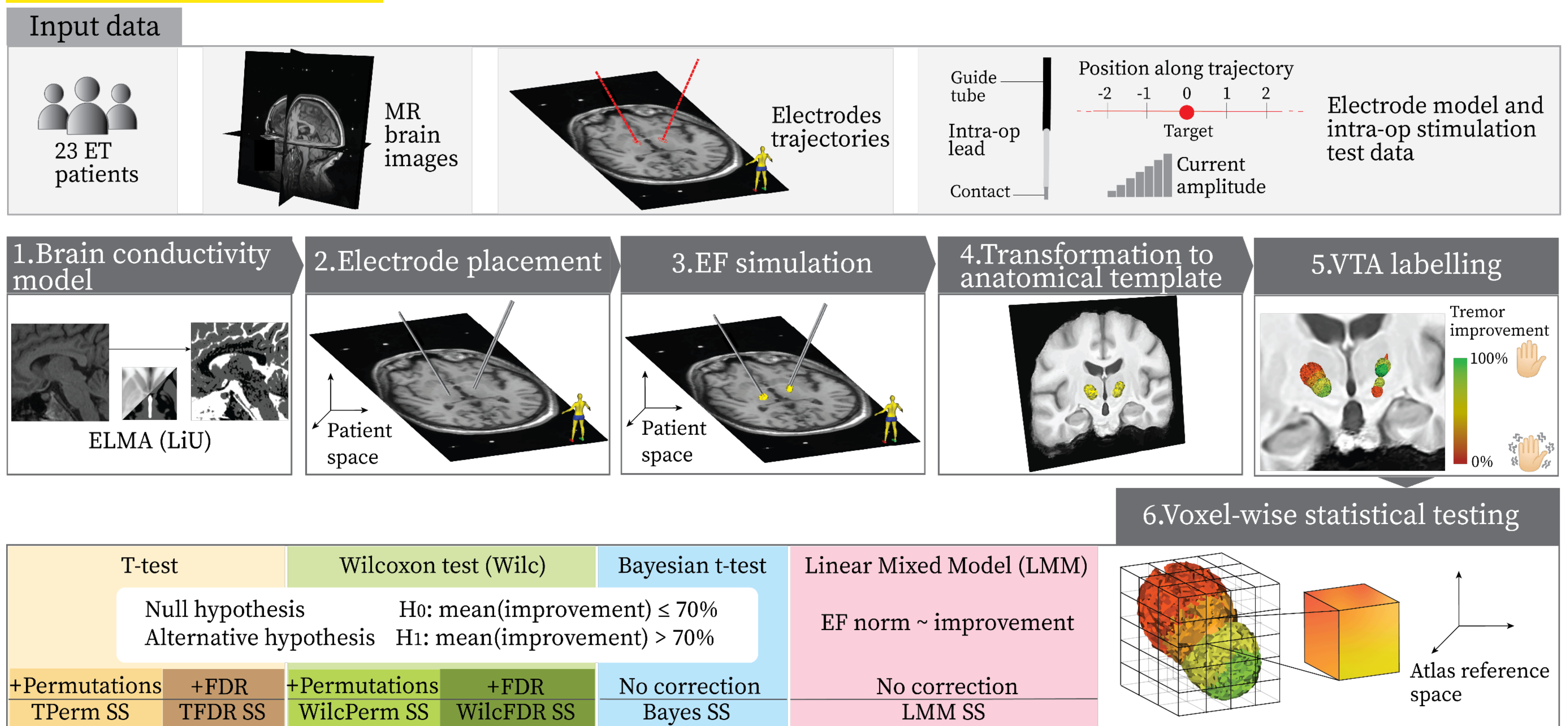
Exploring the impact of statistical methods for defining “sweet spots” in Deep Brain Stimulation

Bucciarelli V.¹, Vogel D.¹, Stawiski M.¹, Nordin T.², Wårdell K.², Coste J.³, Lemaire JJ.⁴, Hemm S.^{1,2}

Introduction

- ❖ The precise location of the so-called Sweet spot (SS) or optimal target, for Deep Brain Stimulation (DBS) is still under investigation.
- ❖ Sweet spots can be generated by statistical analysis of patients’ stimulation data.
- ❖ A comprehensive evaluation of the chosen statistical method’s impact on the extracted sweet spot is still lacking.
- ❖ **Aim:** We applied six statistical methods to DBS patients’ data and compared their outcomes.

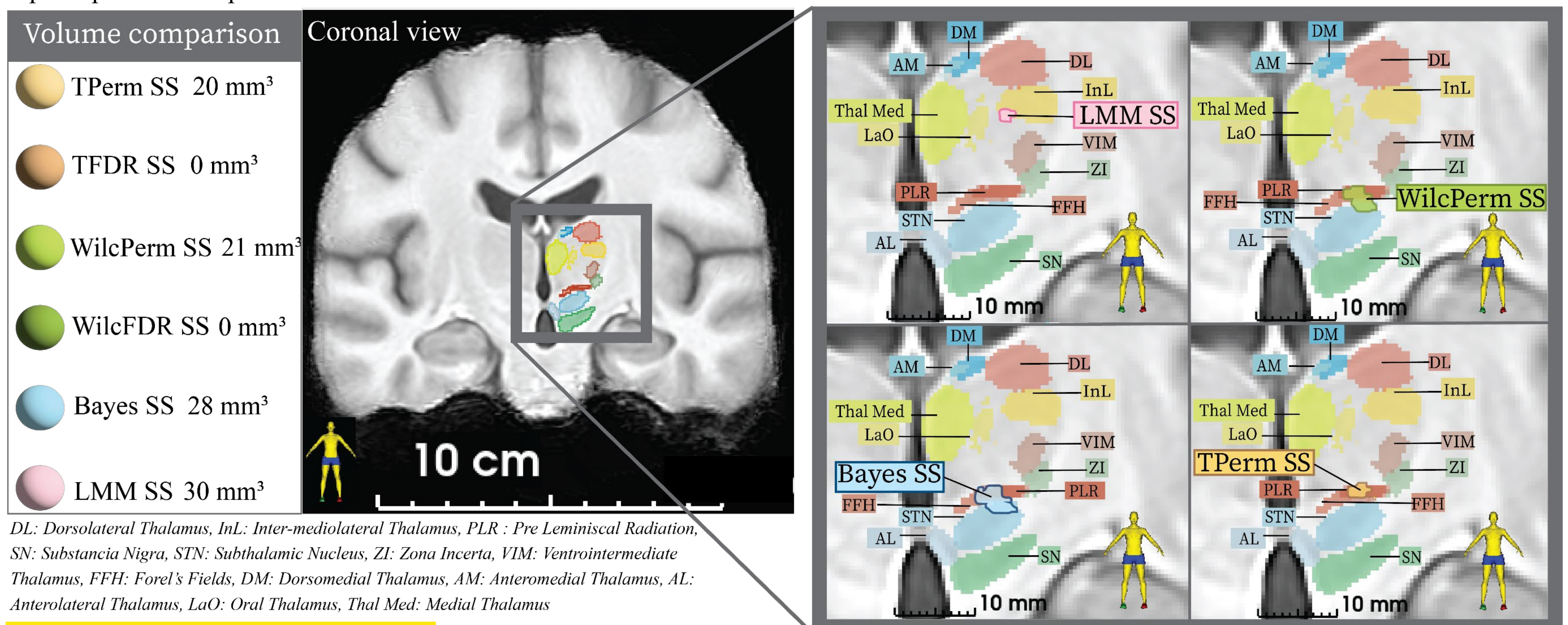
Materials and Methods



FDR: False Discovery Rate

Results

The statistical analyses revealed sweet spots of varying sizes for both hemispheres. The figure shows the results obtained for the left hemisphere superimposed to the patient’s MRI and some anatomical structures.



Discussion and Conclusions

- ❖ The chosen statistical method strongly influences size and position of the extracted sweet spot in group analysis.
- ❖ Bayes, Tperm and WilcPerm generated sweet spots in realistic anatomical positions. Bayes also demonstrated higher robustness to input dataset variations.

Acknowledgments

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