

# Template shape estimation: correcting an asymptotic bias

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Computational Anatomy studies the normal and pathological variations of organs' shapes, often with respect to a mean organ shape called the template shape. Estimating the template shape is then the first step of the analysis. We use tools from geometric statistics to demonstrate the asymptotic biasedness of the Frechet mean algorithm, also called "Max-max algorithm", used for template shape estimation. The geometric intuition provided by this study leads us to suggest debiasing procedures. Our results are illustrated on synthetic and real data sets.

This is joint work with Dr. Xavier Pennec and Pr. Susan Holmes.