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Competing interests

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Competing interests declaration

In the interest of transparency and to help readers form their own judgements of potential bias, Nature Research journals require authors to declare any competing financial and/or non-financial interest in relation to the work described in the submitted manuscript.

- ☐ We declare that none of the authors have competing financial or non-financial interests as defined by Nature Research.
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O. Couture and M. Tanter are co-inventors of an ultrasound super-resolution patent (PCT)/FR2011/052810 M.Pernot. and M.Tanter are co-founders and shareholders of the Iconeus company commercializing ultrasound neuroimaging scanners

Authorship

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Prior to submission all listed authors must agree to all manuscript contents, the author list and its order and the author contribution statements. Any changes to the author list after submission must be approved by all authors.

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- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
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- ☒ We have provided a full data availability statement in the manuscript.

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Confirm that all relevant data are deposited into a public repository and that accession codes are provided.

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Code availability statement

For all studies using custom code or mathematical algorithm that is deemed central to the conclusions, the manuscript must include a statement under the heading "Code availability" describing how readers can access the code, including any access restrictions. Code availability statements should be provided as a separate section after the data availability statement but before the References.

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For all data presented in a plot, chart or other visual representation confirm that:

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- ☐ ☒ The format shows data distribution clearly (e.g. dot plots, box-and-whisker plots)
- ☐ ☒ Box-plot elements are defined (e.g. center line, median; box limits, upper and lower quartiles; whiskers, 1.5x interquartile range; points, outliers)
- ☐ ☒ Clearly defined error bars are present and what they represent (SD, SE, CI) is noted

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- ☒ We have complied with all relevant ethical regulations and include a statement affirming this in the manuscript.

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☒ We have obtained informed consent from all participants and this is noted in the manuscript.

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I certify that all the above information is complete and correct.

Typed signature Olivier Couture Date Jan 18, 2021