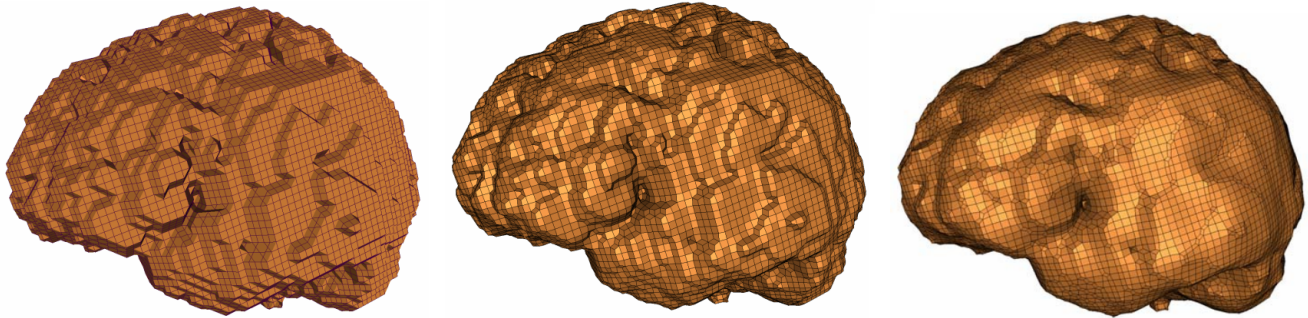# EXTRACTING SMOOTH SURFACES FROM VOXELS

The construction of a free-form 3D surface model is still difficult. However, in our point of view, the construction of a simple voxel model is relatively easy because it can be built with blocks. Even small children can build a voxel model. In this project, we intend to develop a new method (using machine/deep learning) to convert a given voxel model into a smooth surface that matches human perception.

The topic requires a good knowledge in programming, machine/deep learning, and geometry.

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A few references in this direction are:

*References

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[2]   Daniel Cohen-Or and Arie Kaufman. "Fundamentals of Surface Voxelization". In: *Graphical Models and Image Processing* 57.6 (1995), pp. 453–461. ISSN: 1077-3169. DOI: https://doi.org/10.1006/gmip.1995.1039. URL: https://www.sciencedirect.com/science/article/pii/S1077316985710398.

[3]   Kazutaka Nakashima and Takeo Igarashi. "Extraction of a Smooth Surface from Voxels Preserving Sharp Creases". In: *ACM SIGGRAPH 2015 Posters*. SIGGRAPH '15. Los Angeles, California: Association for Computing Machinery, 2015. ISBN: 9781450336321. DOI: 10.1145/2787626.2792635. URL: https://doi.org/10.1145/2787626.2792635.