

replica Documentation

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1 Overview

This package implements the REPLICA image synthesis package outlined in Jog, et al. 2017 [1] in MATLAB. This package has been superseded by the synthit package. Note that this package is *not* actively maintained and only put up for archival purposes.

To use the package, set your MATLAB path to include the `src` directory and all of its subfolders. This will allow the package to reach all required functions.

An initial step for all processing will be to create a parameter structure, dubbed a `param_struct` in the codebase. A default/template `param_struct` can be constructed by the functions in `src/utilities/singleres/default_param_struct.m` and `src/utilities/multires/default_param_struct.m` depending on whether or not the user wants to synthesize skull-stripped images or not (respectively).

2 Training

For skull-stripped images, you can use `replica_train.m` and for non-skull-stripped images you should use `replica_train_multires.m`. If you are running this on a memory-constrained system, you should use `replica_train_multires_low_memory.m` (note that this takes longer than the non-low-memory version).

3 Prediction

Use the corresponding `replica_predict_*.m` according to what you used for training.

4 Miscellaneous

If you have difficulty using this package, you can use the original version listed here. Note that the multi-resolution (non-skull-stripped) version is not implemented in this link.

References

- [1] A. Jog, A. Carass, S. Roy, D. L. Pham, and J. L. Prince, “Random forest regression for magnetic resonance image synthesis,” *Med. Image Anal.*, vol. 35, pp. 475–488, 2017.