

# Support for Reproducing the Results of the Manuscript

Spyridon Pougkakiotis\*    John W. Pearson†    Santolo Leveque‡    Jacek Gondzio§

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This is a supporting file for the code that has been added in the supplementary materials. The code is written in MATLAB and consists of many functions. However, one can reproduce our experiments by running (and potentially altering) the following file:

- `Experiment_ADMM`.

This is the only file one has to alter in order to change the problem under consideration (i.e. all parameters of the underlying FDE optimization problem are included there). The current version of this file runs an optimization problem of moderate size, which is included in the presented experiments of the paper. Parameters that are included in the experiments within the paper are recommended, however, one could run the method for different (sensible) parameters, and should expect a reasonable convergence.

Notice that for different parameters, the penalty parameter of ADMM might need to be adjusted for efficiency. The following 3 values for delta seem to behave well for a wide range of the problem parameters:  $\delta = 0.4$ ,  $\delta = 0.1$  and  $\delta = 2$ .

The algorithm implemented as well as its tuning is described in [1].

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## References

- [1] S. POUKKAKIOTIS, J. W. PEARSON, S. LEVEQUE, AND J. GONDZIO, *Fast Solution Methods for Convex Quadratic Optimization of Fractional Differential Equations*, SIAM Journal on Matrix Analysis and Applications, 41 (2020), pp. 1443–1476, <https://doi.org/10.1137/19M128288X>.

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\*PhD student, School of Mathematics, University of Edinburgh ([S.Pougkakiotis@sms.ed.ac.uk](mailto:S.Pougkakiotis@sms.ed.ac.uk)).

†Lecturer, School of Mathematics, University of Edinburgh ([J.Pearson@ed.ac.uk](mailto:J.Pearson@ed.ac.uk)).

‡PhD student, School of Mathematics, University of Edinburgh ([S.Leveque@sms.ed.ac.uk](mailto:S.Leveque@sms.ed.ac.uk)).

§Professor, School of Mathematics, University of Edinburgh ([J.Gondzio@ed.ac.uk](mailto:J.Gondzio@ed.ac.uk)).