1 README

Information here provided can be used to reproduce the results in the paper *Non-destructive infrared evaluation of thermo-phisycal parameters in bamboo specimens*. Three folders are located in this directory. **BambooInfo** stores the mat files related to each tested bamboo sample. For instance, the mat files KB0_11 and KB1_11 store information of half an unpreserved and preserved bamboo sample, respectively. 0 and 1 in the file identifiers associate with unpreserved and preserved samples. The mat file, KB0_11, retains the following information:

1. **T** is a sequence of thermal images, recording the convex bamboo's face temperature.
2. **ts** is the sampling time.
3. **t** is the time vector.
4. **Ts** is the temperature evolution of the heating resistance during the test. the sampling time for this measurements vector is ts/5.
5. **a** and **b** are the IIR filter coefficients.
6. **center** is a vector indicating the position in T used as a measurements vector in the optimization process.
7. **thickness** is a two component vector which stores the minimum and maximum thicknesses of the bamboo sample. for the heat diffusion model the average was used.
8. **D** is a two component vector which stores the minimum and maximum external diameters of the bamboo sample. for the heat diffusion model the average was used.

results stores the results generated by some of the main scripts. This stored results are used subsequently by an algorithm in charge of Figure creation. We have provided in this folder the results to generate Figures 8 and 9 and Table 2, since running the scripts from zero might take a while. **functions** on the other hand stores all the functions utilized by the main scripts.

To create Figure 1 it is necessary to run Test_BiotNumber.m, Figure 2 instead run Test1_SensCoeff.m, Table 1a and 1b are generated by executing Test1_rndmSeeds_onSynteticData. The tables should appear in the

Matlab work-space. To create Figure 4, run Test_3paramEstim.m. Figure 8 and 9 require some additional work. First, run Test2_BTPE.m and wait until results are stored in the folder **results**. Once they are stored, run Test2_ResultsPresentation.m to display Figures 8 and 9. This is a function without input arguments but as output arguments can be obtained Table 2.