Hello and thank you for your interest in dfemtoolz

In this package user can find the C++ source code, benchmark tests and set of
examples of dfemtoolz software written by Danko Milasinovic.

This package includes (in short words):

* dfemtoolz_dMyLib - core library

* dfemtoolz_remesh - tool that creates [re]mesh using existing mesh (usually
import from Tetgen, or other similar software)

* dfemtoolz_nolimit - tool that identifies surface boundary of an existing mesh
(material)

* dfemtoolz_openR - tool that is able to set various boundary conditions and
loads to the finite element model (this software is able to print various data
concerning the mesh, and to make different outputs / formats)

* dfemtoolz_multimaterial - tool that is used to generate multi-material models
from multiple models (this software is also able to export interface surfaces
between materials)

* caseX-... - set of examples / use-cases scenarios

* dfemtoolz_..._benchmark - benchmark tests

* dmilashinovic_dok_low_res.pdf - phd thesis

In order to have better insight in usage of dfemtoolz, a series of use-case
scenarios (examples) is given to the user in this package. Phenomena that are
commonly analyzed numerically is shown in these examples: fluid flow, fluid-
solid interaction and structural analysis. Due to its structure dfemtoolz is not
limited to these types of FEM simulations. User can set meaning of boundary
conditions so this software can be used for preparation of models for any kind
of FEM simulations. In order to use these examples fully it is recommended that
user have Tetgen software made by H.Si (wias-berlin.de/software/tetgen/), Gmsh
software made by C.Geuzaine and J.F.Remacle (gmsh.info) and ParaView software
(www.paraview.org) installed on his/her computer (with Linux or Windows os).
Tetgen is used to generate initial mesh, and Gmsh and ParaView are used purely
for visualization in these examples.

Due to its design (well written plain C++ code and standard library) these tools
could be efficiently incorporated in other software. Because there are no
specific libraries that are needed for this software - it is portable to
virtually any platform (although in the given package user can find binaries and
makefiles only for Linux and Windows). All function names, variables, classes...
have long and self-descriptive names, so I do presume that anybody can manage to
use the code with ease.

There are modules of dfemtoolz that are excluded from this [public] package
(additional sub-modules of openR for prescribing specific loads to the model,
exports and imports for PAKF, modules for skeletalization, tools for STL
reparation, noise reduction modules, modules for streamlines, module for
generation of particle clouds...). In future some of these modules maybe become
part of public package as well.

This software is available for public under GNU GPLv3 license.

Thank you for your interest
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