Change Log for Xoptfoil-JX

All notable changes to this project are documented in this file.

[1.52] - 2020-06-10

Xoptfoil-JX

- Normalization of the airfoil - the optimized airfoil will be repaneled, moved, scaled and rotated to have the leading edge at 0,0 and the trailing edge at 1,0
    - depending on the repaneling result a new airfoil will have 200 or 201 points (if an additional leading edge point was added)
    - *breaking change* as the new airfoil can differ a little from previous runs

- Revision of smoothing and bump prevention for Hicks Henne shape functions
    - improved smoothing algorithm for the seed airfoil which now also includes leading edge area
    - new constraints max_curv_highlow_top and max_curv_highlow_top to limit the number of "bumps" at top and bottom side (default = 0)
    - moved parameter highlow_threshold from smoothing options to constraints namelist - *breaking change*
    - added examples for smoothing
    - see updated documentation for further information on smoothing and bump prevention

- New shape functions type 'camb-thick-plus' where upper and lower side of the airfoil is treated sperately when modifying the surface. This broadens and improves the usecases for this fast lane optimization type.
- Updated example of a 'high end F3F airfoil' to feature the capabilties of Xoptfoil-JX
- New utility tool `Xfoil_worker` to execute little jobs - also convinient for automizations
    - generate polars of an airfoil in xfoil format which can be imported directly in xflr5 or flow5
    - normalize, optionally smooth an airfoil. Generates a 7 decimals airfoil file.
    - see documentation of `Xfoil_worker`
- For Windows the programs will be linked 'static' - so no more additional libraries are needed to run `Xoptfoil-JX` or `Xfoil_worker`
- Fixes
    - Different methods were used to calculate thickness and camber. This is now consistent taking the more precise method

Xoptfoil_visualizer-JX

- Fixes
    - new plot objects were added at each refresh. This slowed down the visualizer more and more during long optimizations
    - removed flicker of the three plot windows

Thanks to Tobias for testing and advices, Alexander for his hint regarding smoothing algorithm - and of course to my super developer mate Matthias.

[1.51.0] - 2020-05-24

Xoptfoil-JX

- Revision of match_foils mode. Added ready to run examples to demonstrate the theoretical precision of Hicks-Henne or Camb-Thick based optimizations.
- New geometric constraint 'max_te_curvature' to handle curvature problems at TE when using Hicks-Henne shape functions
- Re-activated multi threading for optimization runs. Multi threading is switched off when 'show_details = .true.' is set to avoid mixed up console output.
- The smoothing option now affects only the seed airfoil at the beginning of an optimization. During optimization smoothing is switched off. The assessment of the surface is still active to detect bumps (High-Lows of curvature) - experimental.
- The default value for the number of panels ('npan') used for xfoil calculations is now set to 201 (previously 160). This avoids discrepancies between the xfoil results during optimization and the properties of the final airfoil (which has 201 panels)
- Fixed: When creating 'initial designs' the xfoil calculation isn't called anymore. This speeds up 'initial designs' heavily.
- Code cleanings and minor bugs

Xoptfoil_visualizer-JX

- created short documentation (Xoptfoil_visualizer-JX Reference.pdf)
- show points of transition laminar-turbulent in geometric view
- some code revisions - ease setting of additional plot options (see documentation)

[1.50.1] - 2020-04-24

- fixed a bug for LINUX colored output
- fixed LINUX built to handle environment variables properly (thanks John)
- fixed display of airfoil name when generating polar

[1.50.0] - 2020-04-22

- Initial release with a compiled version for Windows
- ready to run examples in ./examples