Shape optimization in $SU^2$

OpenMDAO / $SU^2$ joint Workshop
Stanford University
Tuesday, October 1st, 2013

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ONERA M6 Shape Optimization

1. Define and run the physical problem.
2. Evaluate geometry (thickness, AoA, etc).
3. Define 3D design variables.
   1. Create the FFD box (.su2 file).
   2. FFD design variables preprocessing.
4. Define the optimization problem
   1. Objective function.
   2. Constraints (flow and geometry).
   3. Design variables based on FFD box.
5. V&V before the optimization (optional).
   1. Compute C_D and C_L gradients.
   2. Compute geometric gradients.
6. Final checks (optional).
   1. Restart files are available.
   2. The grid contains the FFD information.
   3. The stop criteria is reasonable.
   4. The proposed optimization problem makes sense (scaling).
7. Run the optimization.
8. Analyze the solution.
   1. Folder structure and history_project file.
   2. Restart capability.
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