

Protégé Topic: Airfoil, compressor & fan design with optimization  
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An airfoil, compressor, fan and turbine design code has been developed at UC and made open source. Using analysis methods and optimization approaches, improved designs have been developed. A new airfoil developed this way for a wind turbine is shown in Fig. 1. Fig. 2 shows the fan geometry for a new electric propulsion application.

This project will be to work with the geometry generator integrated with the optimization system to produce optimized blades for specified applications.

In addition, the geometry generator has been integrated with an open source CAD package ESP developed at MIT and Syracuse University. It allows coupling with a lot of analysis software. The application of this tool will be developed further.

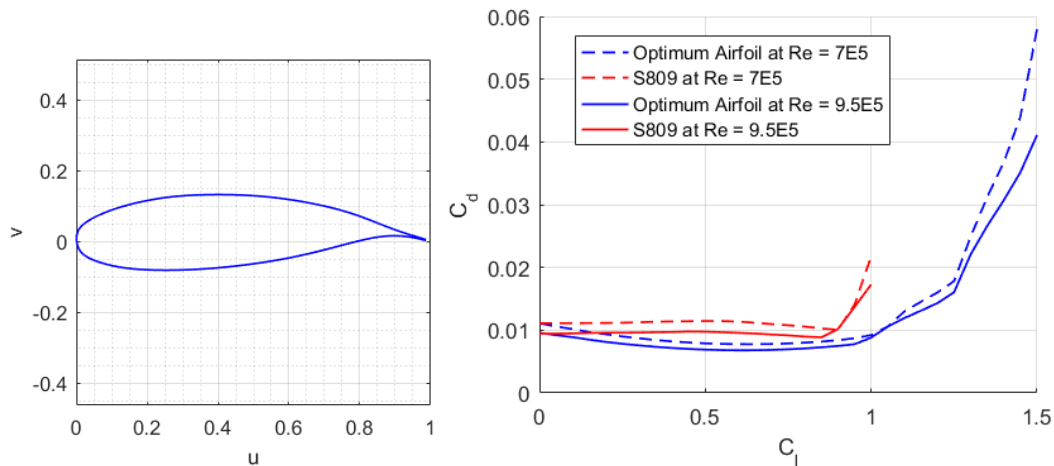


Figure 1. Improved Wind Turbine Airfoil (shape left) and Drag bucket for new design as compared to S809.

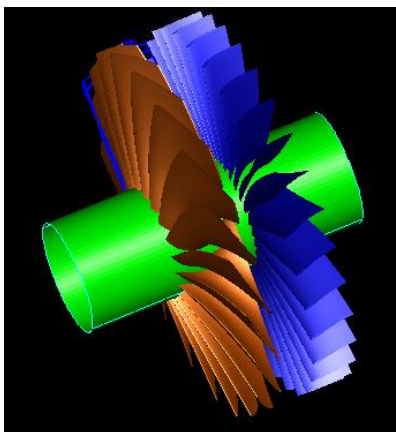


Figure 2. Fan Design for electric propulsion application.

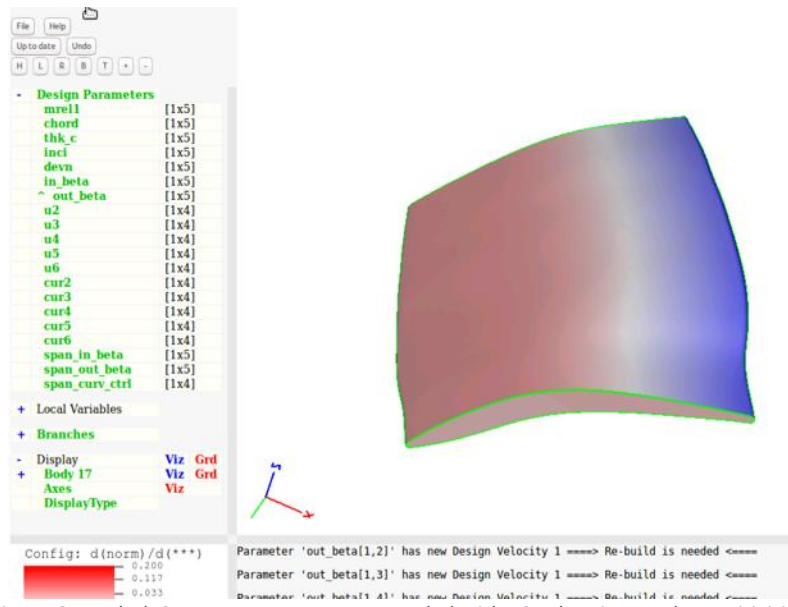


Figure 3. T-Blade3 geometry generator coupled with ESP showing angle sensitivities.