Aerodynamic Design Optimization

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We will describe our work to apply optimization techniques to the design of aircraft. The first part of the talk, by Bill Huffman, will describe how a constrained optimization problem is formulated within the TRANAIR aerodynamic software environment. The second part, by John Betts, will describe the properties of the resulting nonlinear programming problem which are unique to the aerodesign application, and present methods for dealing with these features. The third part of the presentation, by John Lewis, will describe issues that must be addressed to efficiently solve a quadratic programming subproblem, which is required by the NLP.