# Optimal Synthesis of Mechanisms within the Pro/Engineer Environment

## Dr. Andreas Vlahinos

**Advanced Engineering Solutions**
**www.aes.nu**

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## Abstract:

A computer-aided design methodology that generates feasible and promising conceptual designs of mechanisms that accomplish a set of desired motions is presented. The method automates and optimizes the iteration between synthesis and analysis of mechanisms by integrating Pro/Engineer's sketcher, MDO and BMX capabilities.

The process will be demonstrated with an example of a load handling mechanism. The desired positions of the load, the region of allowable attachment points, and the "keep out zone" will be provided. The method will result in the dimensional synthesis of a linkage. The resulting linkage can be automatically optimized with behavioral modeling for the transmission angle, the reaction forces, or the motor power.