



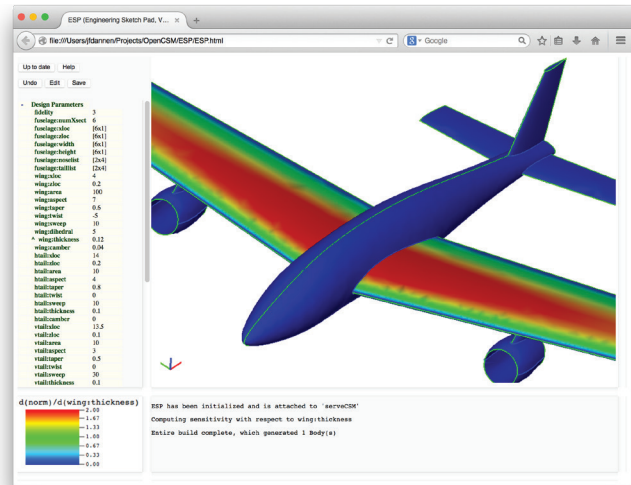
# esp Training

The “Engineering Sketch Pad” (**esp**) system is software specifically built to facilitate Design through Analysis. As opposed to most commercially-available geometry-generating CAD systems, **esp** is designed for geometries encountered in aerospace applications for which analysis computations are desired (and at various levels of fidelity). Unlike MDO frameworks, **esp** provides an integrated environment where the geometric model is directly available to all analysis components.

**esp** is architected with a client-server model, where the back-end runs on most modern operating systems (Windows 10/11, Mac OSX, and Linux) and the front-end runs in modern web browsers (Firefox, Google Chrome, Safari & Edge), without the need for plug-ins.

The distinguishing features of this Open-source system includes:

- Geometry construction script files that are readable ASCII text
- Feature-based parametric geometry modeler
- Full suite of feature-tree branch types
- Compiled custom features
- Persistent attribution
- Sensitivities: Rapid analytic derivatives (when available) of the geometry with respect to design parameters
- Python scriptable workflow definition
- Hands-off meshing
- Analysis support through compiled-based plugin components
- Interdisciplinary conservative data transfers
- Support for design decisions through *Phasing*
- An Integrated Design Environment (IDE)



## Instructors

John Dannenhoffer III, Syracuse University  
Marshall Galbraith, MIT

## Where and When

Virtual with the possibility of Hybrid

### Geometry:

12—16 Dec 2022 10:00am-noon (Eastern)

### Workflow:

09—13 Jan 2023 10:00am-noon (Eastern)

*Homework assignments given for each session*

## Registration:

If interested (for questions, details and instructions) please contact:

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Download at → <http://acdl.mit.edu/ESP>