

OpenVSP

Recent & Ongoing Support

Rob McDonald

ESAero USAF SBIR

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Tremendous progress over past several years.

- Edit XSec (3.19.0)
 - Continual improvement and fixes
- Intersected CAD interchange files (3.21.0)
- VSPAERO Integration (continual)
 - Unsteady rotating blades (3.21.0)
- API Improvements
 - Documentation generation (3.19.0)
 - Doc unit tests (added 3.20.0, run in 3.24.0)

ESAero USAF SBIR

- XSec Area parameterization (3.26.0)
- 3D Edit XSec (3.27.0)
- Edit XSec corner rounding (3.27.0)
- Chevrons (3.27.0)
- VSPAERO Integration (3.29.0)

Recent Work

- Integrated Flowpath Modeling (3.32.0)
- Extended Tip Cap (3.33.0)

NASA Contracting

Dave Kinney TPOC

Currently in 4th six-month contract

Phase 1

- Volumetric RST & LMN coordinates for OpenMDAO (3.28.0)
- Various structure improvements (3.28.0)

Phase 2

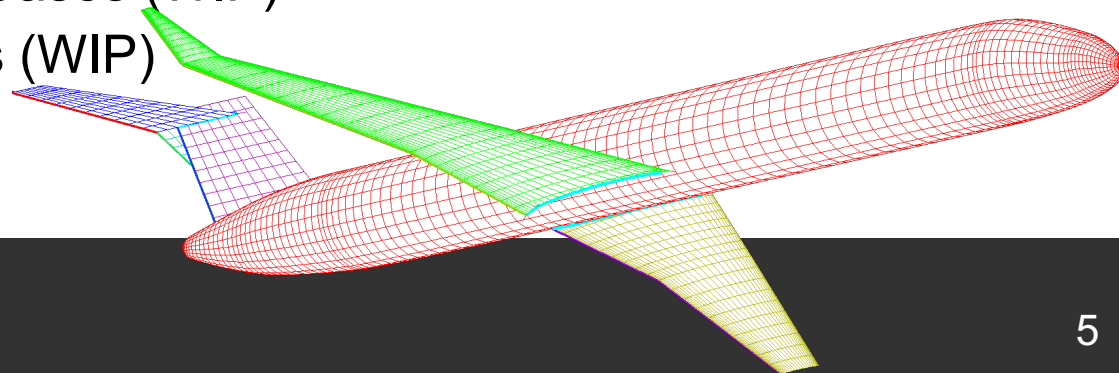
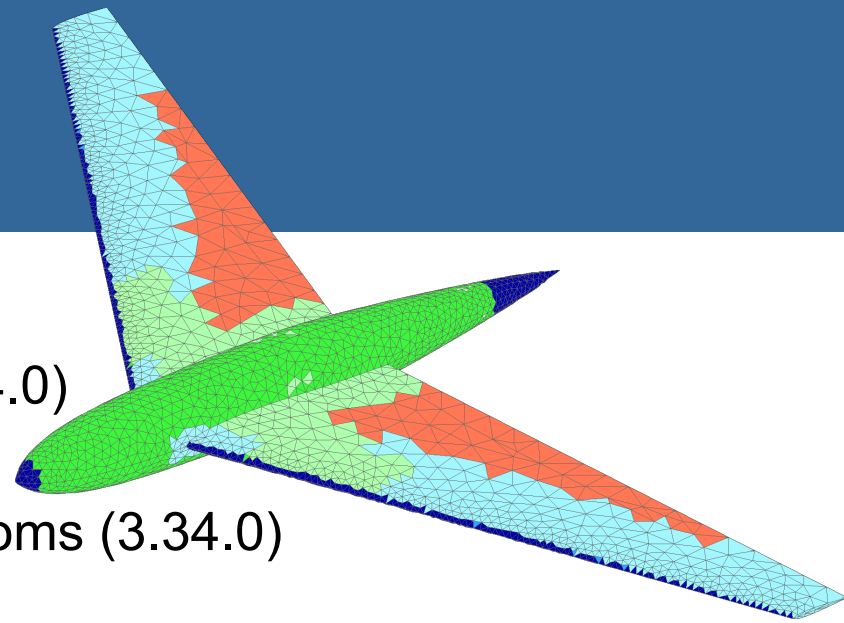
- Structural assemblies (3.31.0)
- Quad meshing (3.29.0)
- Aero-structural workflow w/ VSPAERO & CalculiX (3.31.0)

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Phase 3

- CFDMesh 'Reason' Visualization (3.34.0)
- Scaled CFDMesh Controls (3.34.0)
- Clustering for Stack and Fuselage Geoms (3.34.0)
- Fix root/tip Chord Control (3.34.0)
- Adjoint VSPAERO on Windows (3.34.0)
- Mixed Thick/Thin for VSPAERO (Done)
- CompGeom to N-gon Mesh (Done)

- Nuanced Symmetry w/ VSPAERO (Pending)
- VSPAERO Simple CI Test Cases (WIP)
- VSPAERO V&V Test Cases (WIP)



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Phase 4

- Improved Mass Properties (3.35.0)
- Control Surfaces in UV *.vspgeom (Done)

- Thin Surface Intersection & Trimming
- Supply VSPAERO with $CD0=F(M,Re)$
- Support Development of VSPAERO
- Call new combined normal/adjoint VSPAERO binary
- Profile FEA/CFD Mesh
- Improve FEA/CFD Mesh performance as guided by profiler
- Add Laminate Buildup Tool
- Off-body Fixed Points in Structure

M4 Engineering USN SBIR

AJ Field & Kal Weller, TPOC
Thomas Nascenzi, PI
Rob McDonald, Consultant



Phase 1 (July-Dec 2022)

- Add documentation to Analysis and Results Manager API (3.32.0)
- Blocking GUI capability for API (Done)
- Non-blocking GUI capability for API (Done)
- Prototype Python application (Done)
- MDAO-based Integration with ADAPT and AIDEN (Done)
- Demonstrate two-way communication with ADAPT and AIDEN (Done)

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Phase 1 Option (Feb-July 2023)

- Volumetric Attachment (3.33.0)
- Conformal Trim Improvements (3.34.0)
- User Parm API Additions (3.35.0)

- GUI Limiting API (Done)
- Integrate OpenVSP GUI with M4SS (Done)
- Extend OpenVSP Server to Support Multiple Instances (Done)

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Phase 2 (August 2023 – August 2025)

- Improve Non-blocking GUI & API
 - Reach releasable state
 - Automate process for building the facade API
- Improved handling of broken links
- Improved UX and API for Linking and Advanced Linking
- Three-point angle probing
- The ability to associate data with geometries
- The ability to define control surfaces by linear span fraction
- The ability to add notes to a model
- User settings (Native file dialog)
- Automated Python API Documentation and Unit Testing
- Demonstrations

Questions?