

3D File Conversion Tool

Motivation

This project simplifies the conversion process from RISA-3D and Modelsmart to the OBJ file format for the Students competing in the ASCE Student Steel Bridge Competition and the UAA Summer Engineering Academics. Neither software provides a way to simply export their models. Before this software these models had to be tediously made by hand from the wireframes.



Figure 1. Pictured to the left is a previous years steel bridge design

Methods

After parsing in the input file formats we were only left with the nodal coordinates. To generate the meshes we used linear algebra to be able to expand the points in 3D space.

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 12/06/2024

RISA-3D → OBJ

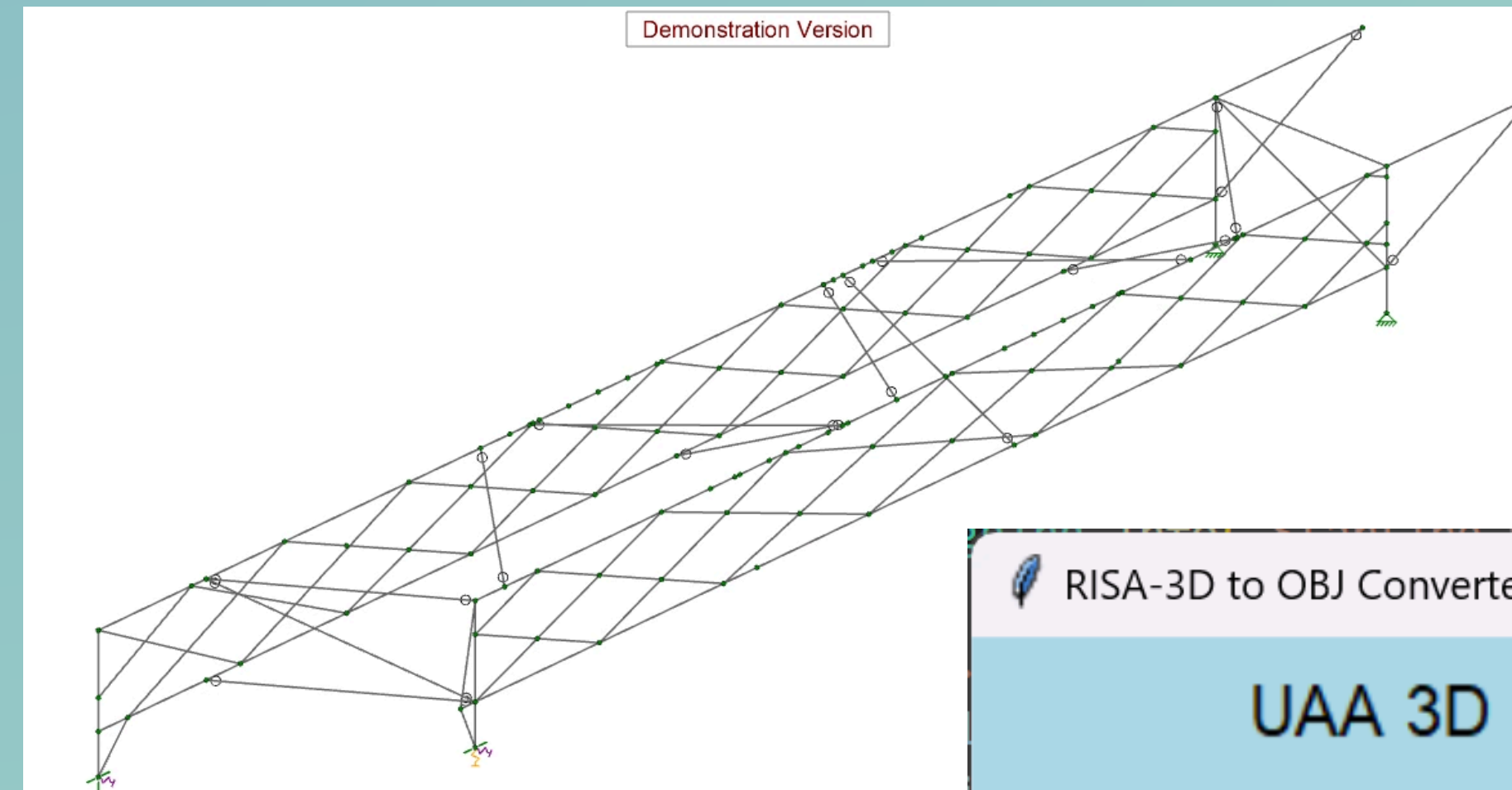


Figure 2. Model in RISA-3D

ModelSmart → OBJ

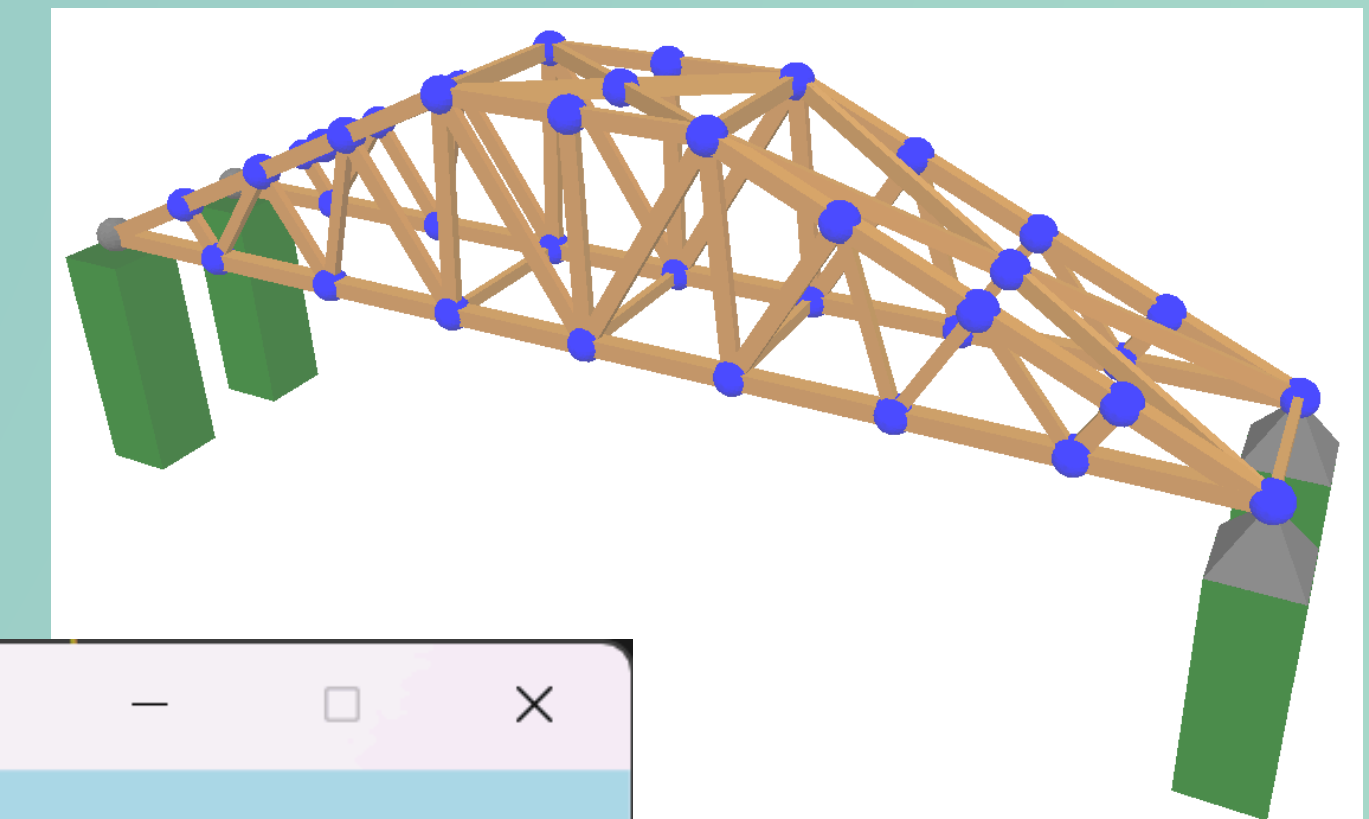


Figure 3. Modelsmart model

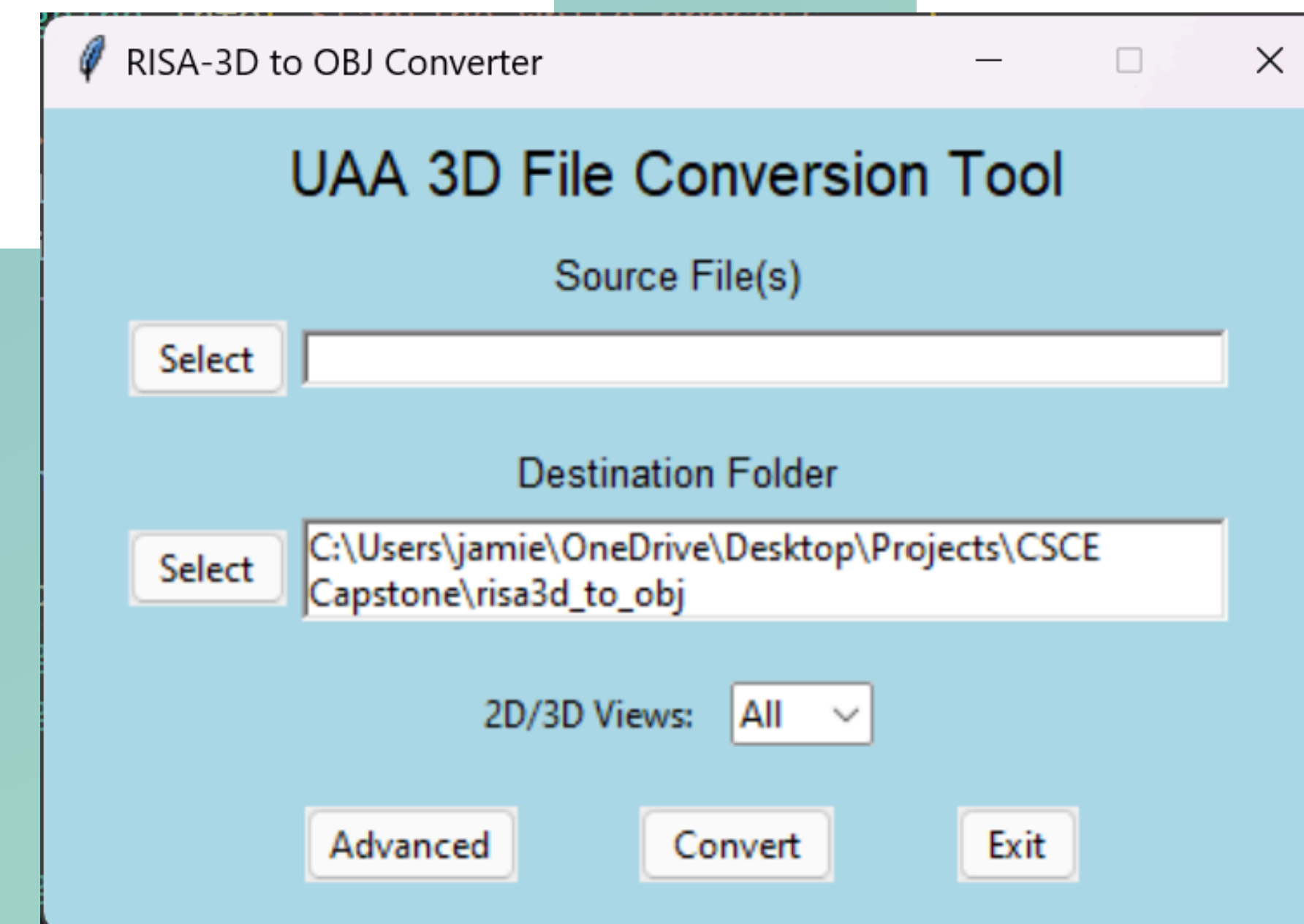


Figure 4. To the left is the GUI for the application

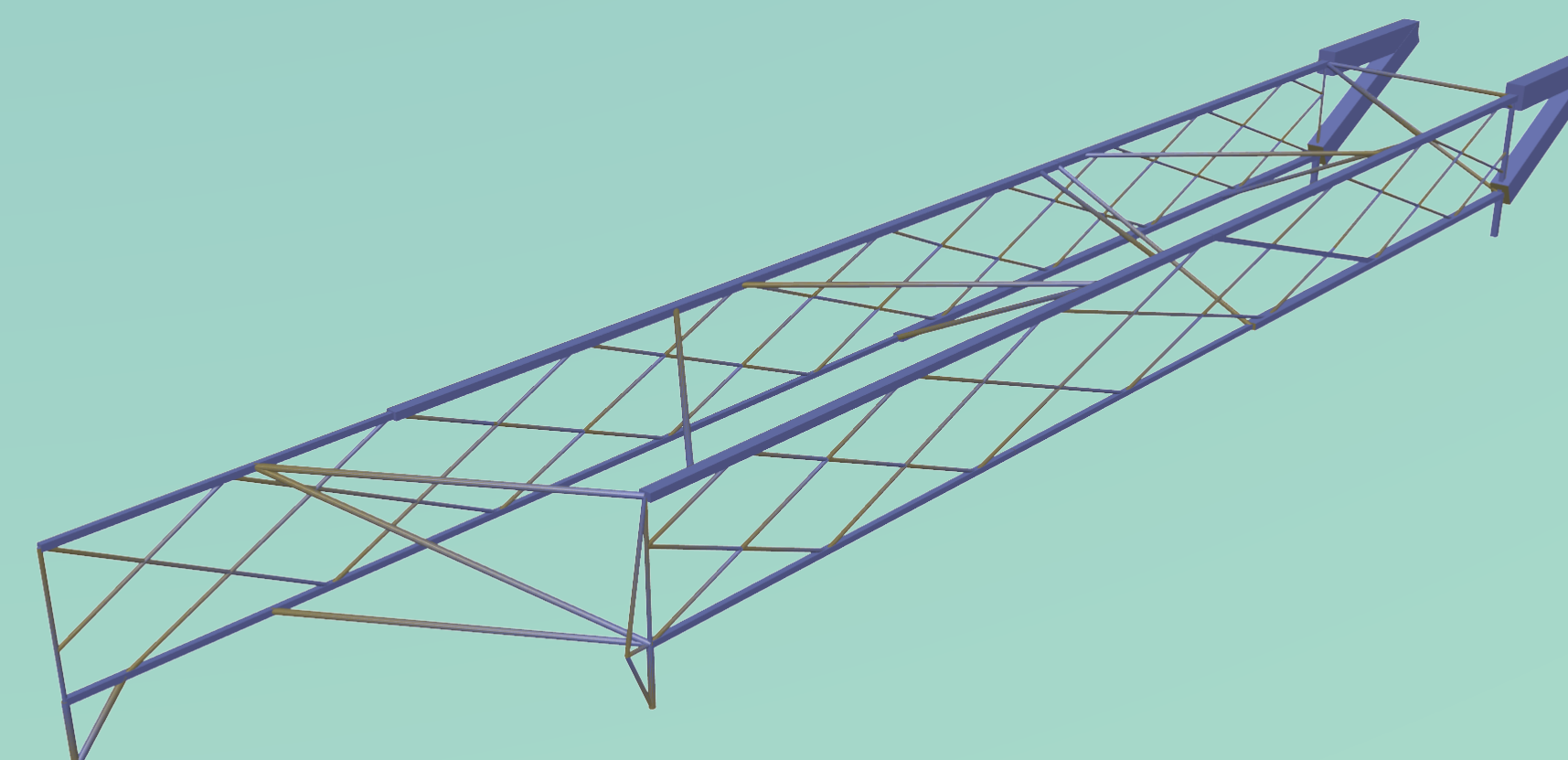


Figure 5. RISA-3D model after conversion

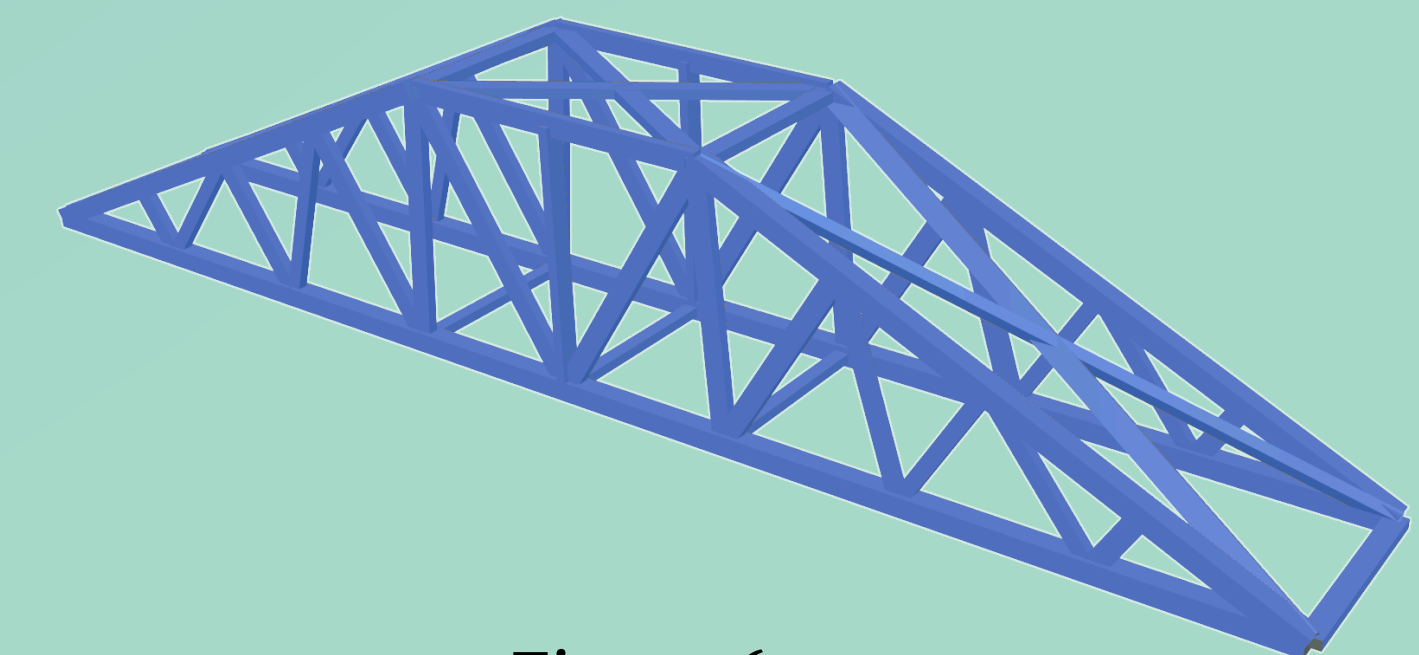


Figure 6. Modelsmart model after conversion