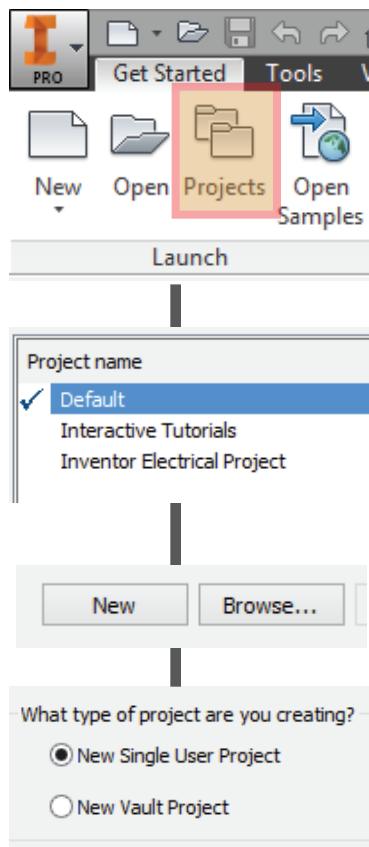


CAD CHEAT SHEET

OVERVIEW

SETTING UP

- **Create a project** --> Allows better organization of files; Makes assemblies much easier



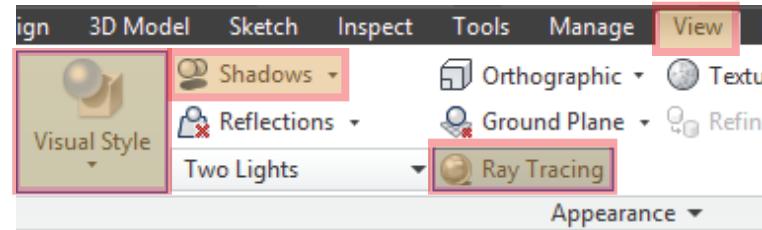
FILE TYPES

- **Standard.ipt** --> First step in creating files; Turn sketches into 3D parts
- **Standard.iam** (Assemblies) --> Putting .ipt files together to form an assembly
- **Standard.ipn** (Explosion and Presentation) --> Shows each individual part of an assembly coming together

RENDERING

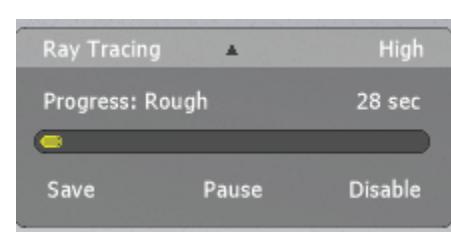
- Gives parts and assemblies crisp, clean looks
- Good for portfolios, pits, presentations, etc.

BASIC RENDER



Under the **View** tab:

1. Select "Realistic" under "Visual Style".
2. Select "All Shadows" under "Shadows".
3. Enable "Ray Tracing".



Under the "Ray Tracing" menu that pops up in the bottom right corner,

hover over the arrow and select "High".

*Until the render is complete, do not move the mouse or touch the keyboard.

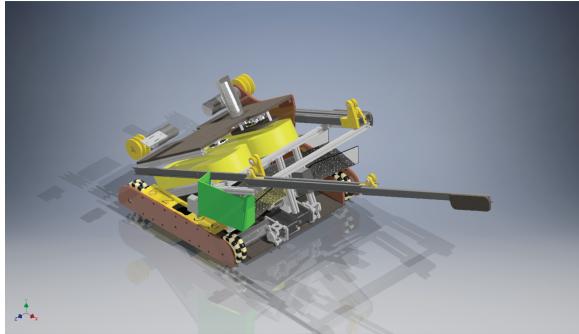


unrendered



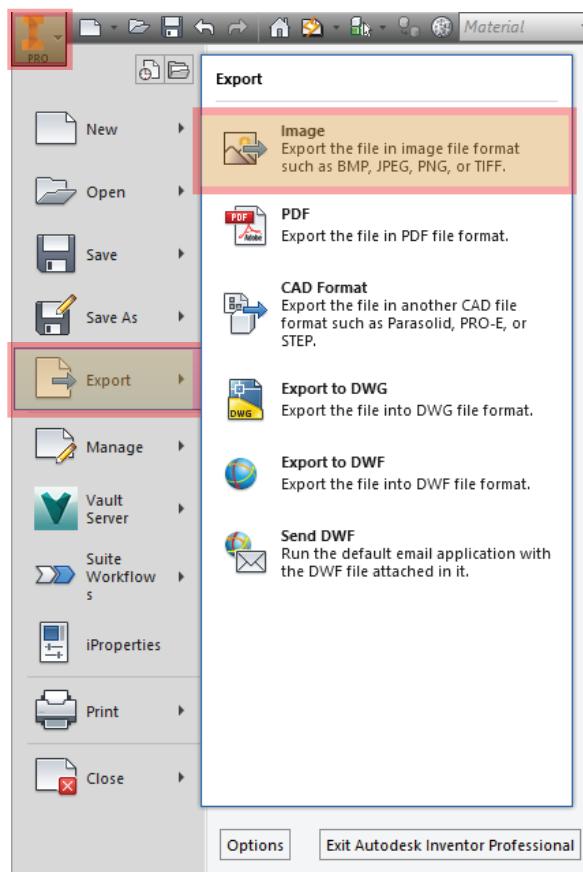
rendered

Rendering larger and more complicated assemblies will present them with much better quality and detail.



EXPORTING IMAGES

Rendered parts can be converted to image files to be printed



Under the **Inventor** symbol:

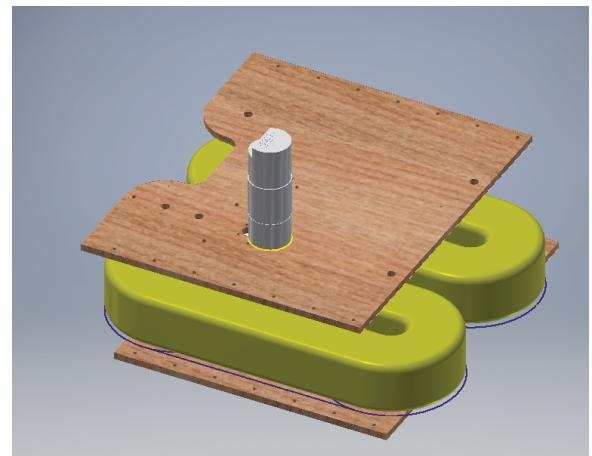
1. Select "Export".
2. Select "Image".

TIPS AND TRICKS

- Always ground the first part placed in an assembly file
- Explore sketching and assembly tools -- one tool could save you many steps
 - Ex. Loft, pattern, mirror, sweep
- Make sure to always update your files when finished working on them.

PTC DESIGN AWARD

Presented to the team who incorporates unique, creative, and industrial design elements into their robots.



Manipulator: Foam is effective in gripping the blocks and carrying them up to the basket.

TIPS

- CAD first -- planning and designing your robot beforehand is crucial
- Quality of CAD is important