Novineer Simulation for FDM Printed Parts

Why simulation for FDM?

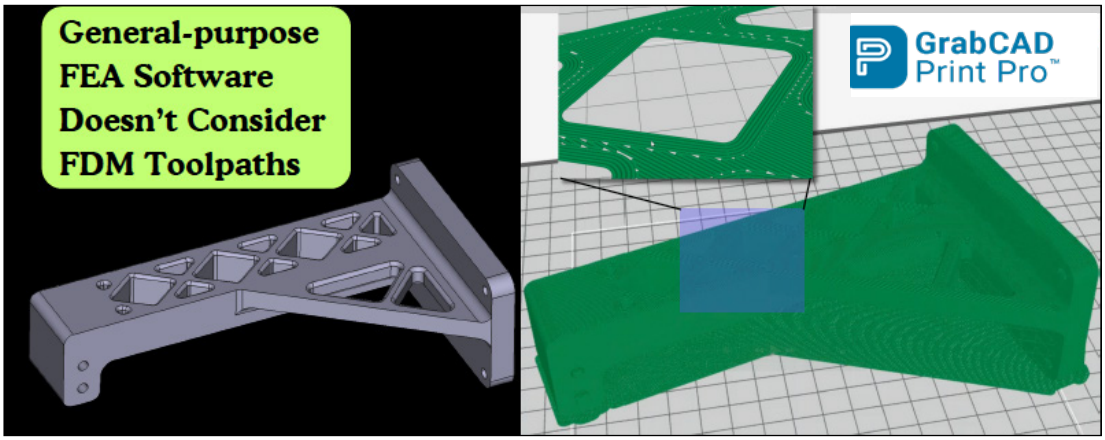
High-value sectors like aerospace, defense, and automotive demand proof that printed parts will perform as intended. Novineer's simulation is purpose-built for material extrusion 3D printing. It's simple to operate, correlates with physical testing, and is computationally efficient—so engineers can make better decisions earlier, with fewer tests, fewer iterations and greater confidence!

- **De-risk critical parts:** Predict deformation and failure modes in NoviPath before printing.
- **Design with intent:** Align toolpath orientation to the actual load path. Then re-verify with NoviPath simulation.
- **Reduce cost & lead time:** Fewer print-and-break cycles; faster path to a qualified part.

Why does general-purpose FEA software fall short?

Fewer print-and-break cycles; faster path to a qualified part.

- No validated material models for FDM/FFF.
- Requires manual material/lamina setup and meshing that don't reflect extruded-path physics.
- Complex general-purpose UIs and long solve times; slow design iteration.



Stratasys Partnership Value

Unlocking Stratasys Printer Performance

NoviPath works seamlessly with GrabCAD Print Pro, leveraging actual toolpath data from Stratasys FDM printers (F900, F450, F370, F3300) with pre-validated materials including ULTEM™ 9085, Antero 800NA, FDM Nylon 12 CF, ABS-M30, and PC-ABS.

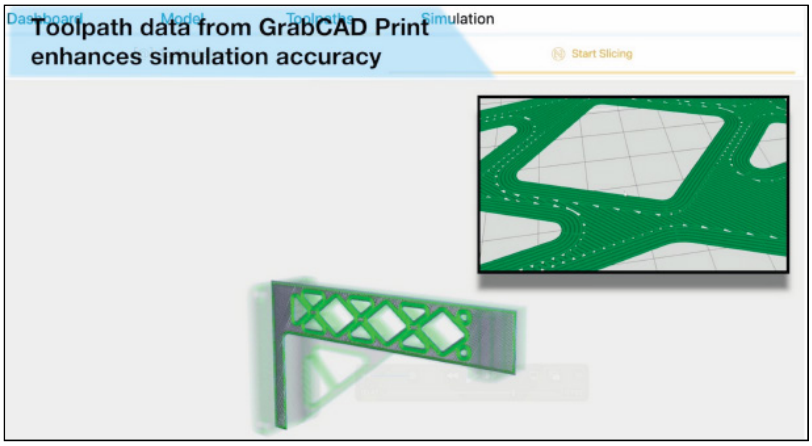
Novineer Simulation at a Glance

Novineer simulation at a glance

- **Easy to use:** Simple and straightforward UI; accepts STL and STEP
- **Accurate:** Models bead-level anisotropy, Toolpaths-aware stiffness/strength.
- **Efficient:** Tuned FEA for FDM; results in minutes for typical parts.

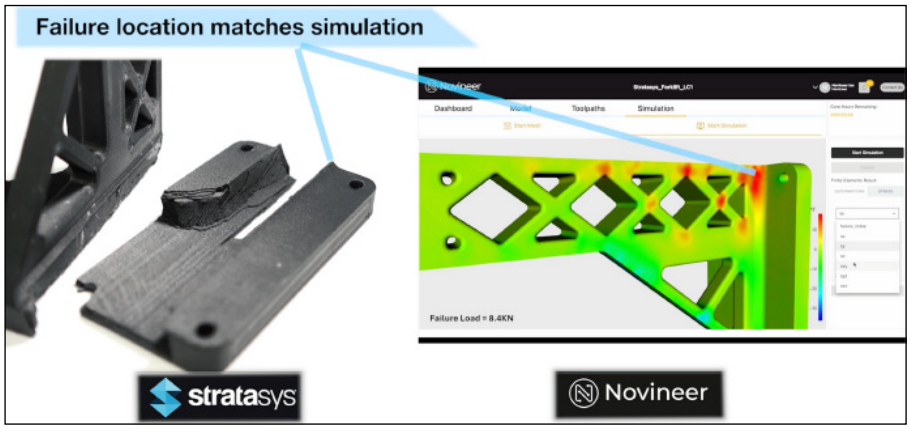
Novineer Simulation Workflow

- Import geometry (STL or STEP), toolpath, material and printer (GrabCAD Print Pro Simulation Data Export)
- **Apply loads & constraints:** Point/area loads, fixtures
- **Solve:** Fast FEA analysis with anisotropic constitutive behavior.
- **Review:** Inspect displacement, strain, stress, and failure load



Core value

- **Deformation & failure location and load predictions:** Aligned with internal experimental data.
- **Actionable outputs:** Displacement, strain/ stress hot-spots
- **Built for teams:** Repeatable workflows, shareable reports, and traceable assumptions.



Proven Accuracy

Simulation

285 kg

predicted

Actual

300 kg

tested

35%

weight reduction on load-bearing parts

Failure location

Exact match

Join Our Early Access Program

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