# Worst-case Structural Analysis
Supplemental Material

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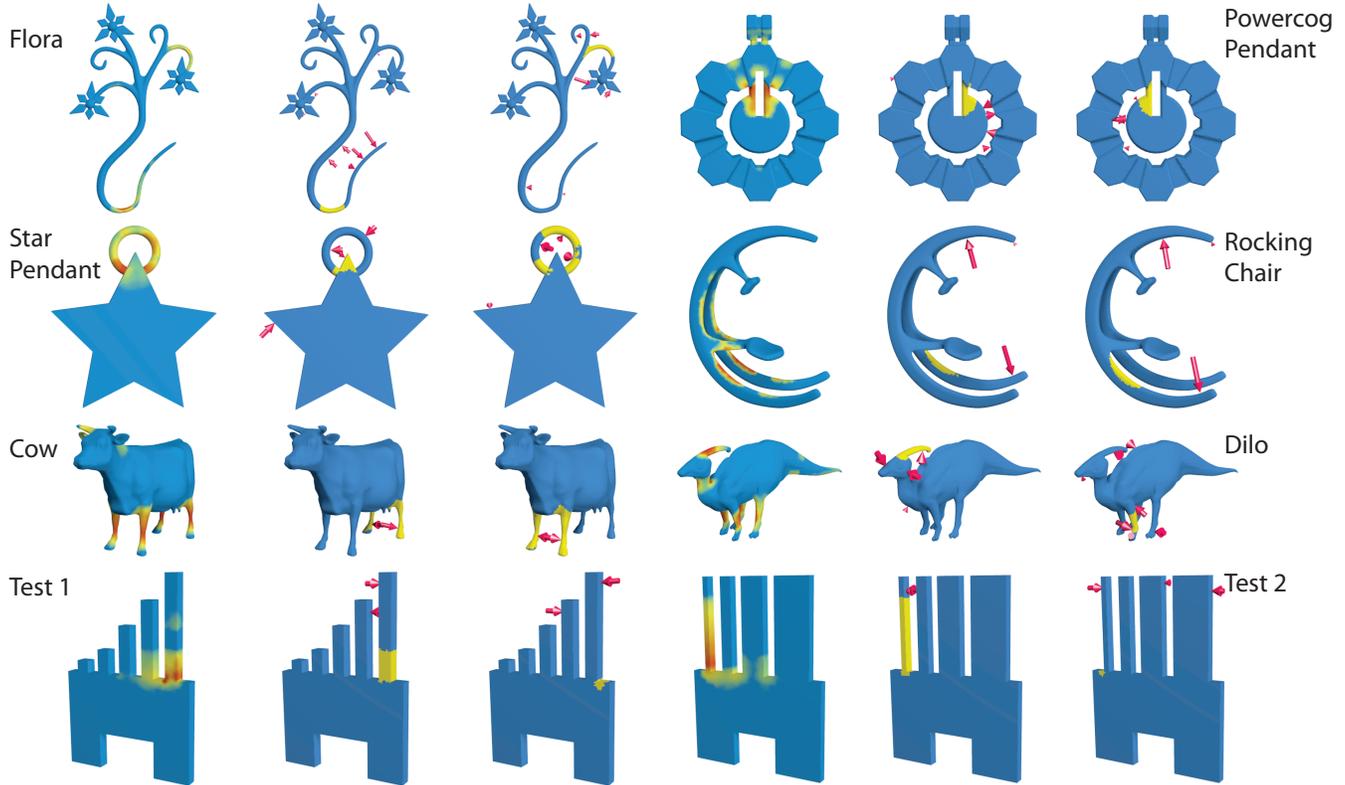
Worst-Case Force Visualizations

In this supplement, we provide visualizations of the weakest and second weakest regions for every model in the drop test. We also visualize the worst-case forces found for each weakest region and reproduce the weakness maps for context. The weakness map is shown on the left, followed by the first and second weakest regions. Not surprisingly, we found the weakest regions to be sensitive to the weak region extraction algorithm (e.g. the choice of ϵ), as different regions can have similar levels of stress, but the weakness maps change very little.

We also include two models not tested in the drop test: the truss and the spinnoloid. These are examples of more complicated geometries where our method still finds meaningful weakest regions and forces.

Model Credits

We thank the designers who generously gave us permission to use their models:

Stava et al.: Project page
soccer cup (Fig 13)

Improbablecog: Shop page
flora (Fig 1,10), powercog (Fig 10), blade earring (Fig 11)

Novastar Design: Shop page
skyrim (Fig 12), heart(Fig 2)

unellenu: Shop page
butterfly (Fig 10), spinnoloids (Fig 11)

kspaho: Shop page
scorpion (Fig 11)

TerryDiF: Shop page
turret (Fig 6,10)

Julia Boersma: Shop page
trilobyte (Fig 10)

Aim@Shape: Shape repository
cow (Fig 10), dilo (Fig 10), dancer (Fig 8, 10, 12), wood chair (Fig 5, 10)

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Cherry
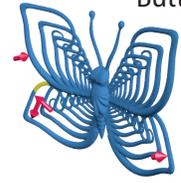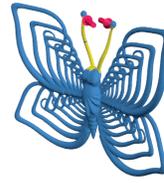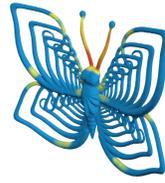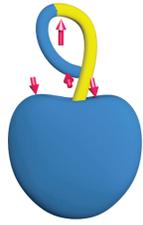
Butterfly

Gear
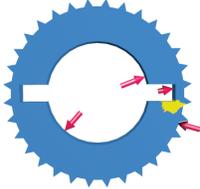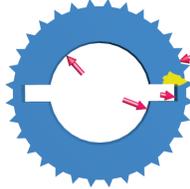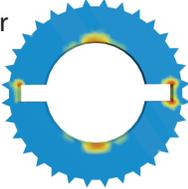
Leaf

Chair
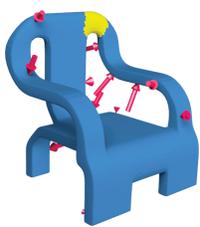
Dancer

Wood
Chair

Turret

Trilobyte

Truss

Spinnoloids