

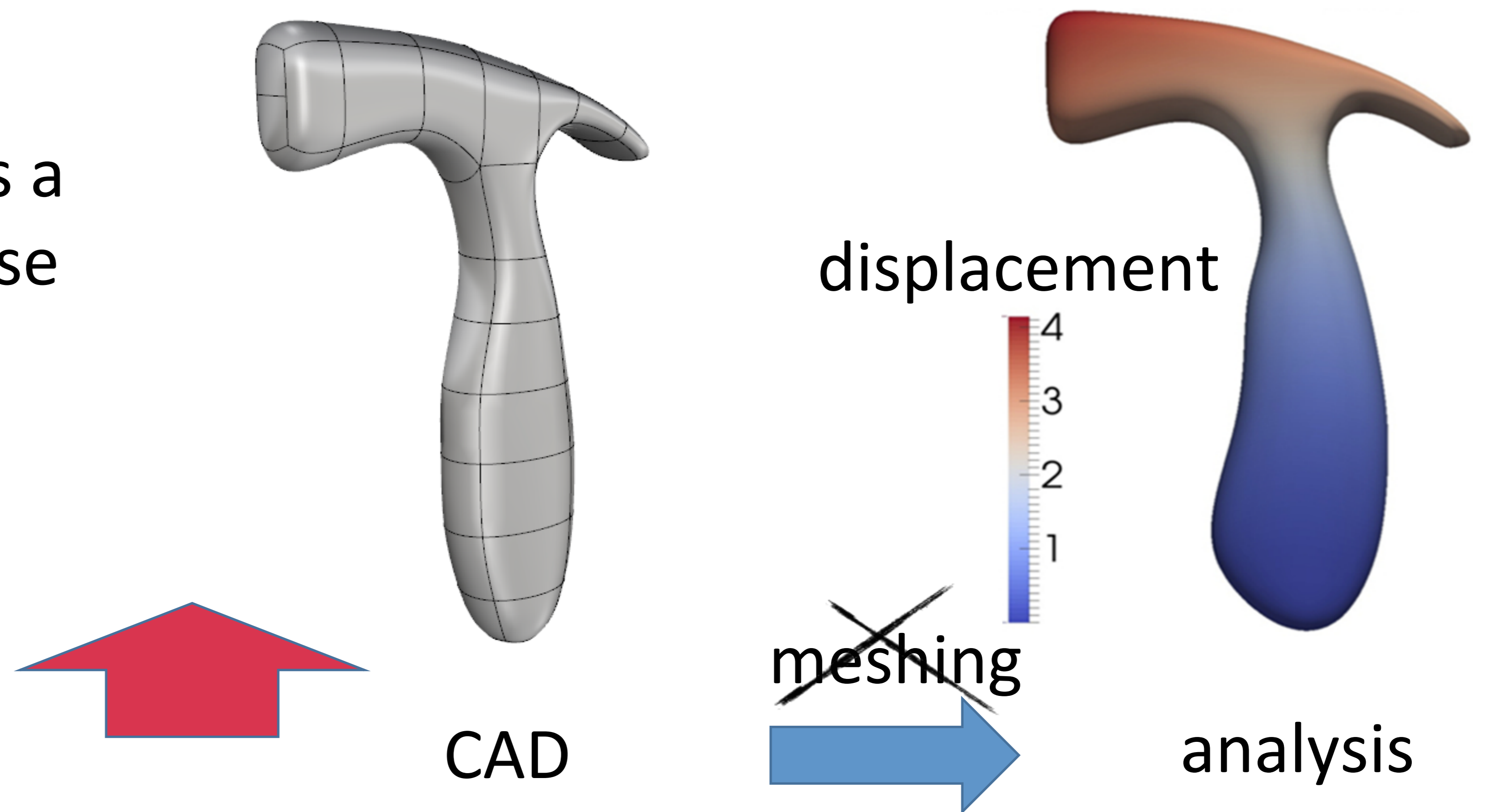
# Stress analysis, damage tolerance assessment and shape optimisation without meshing

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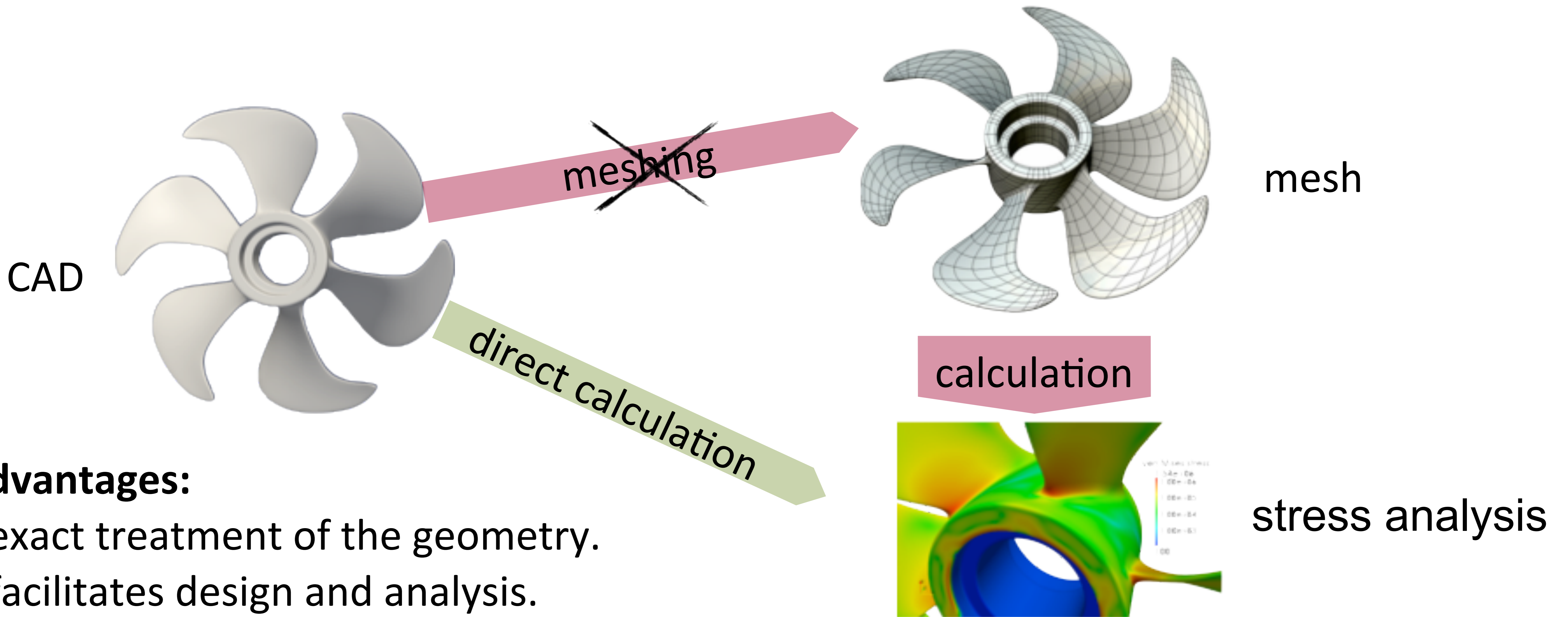


## Shape optimisation with IGABEM

Gradient based optimisation requires a sensitivity analysis. In this work we use implicit differentiation.



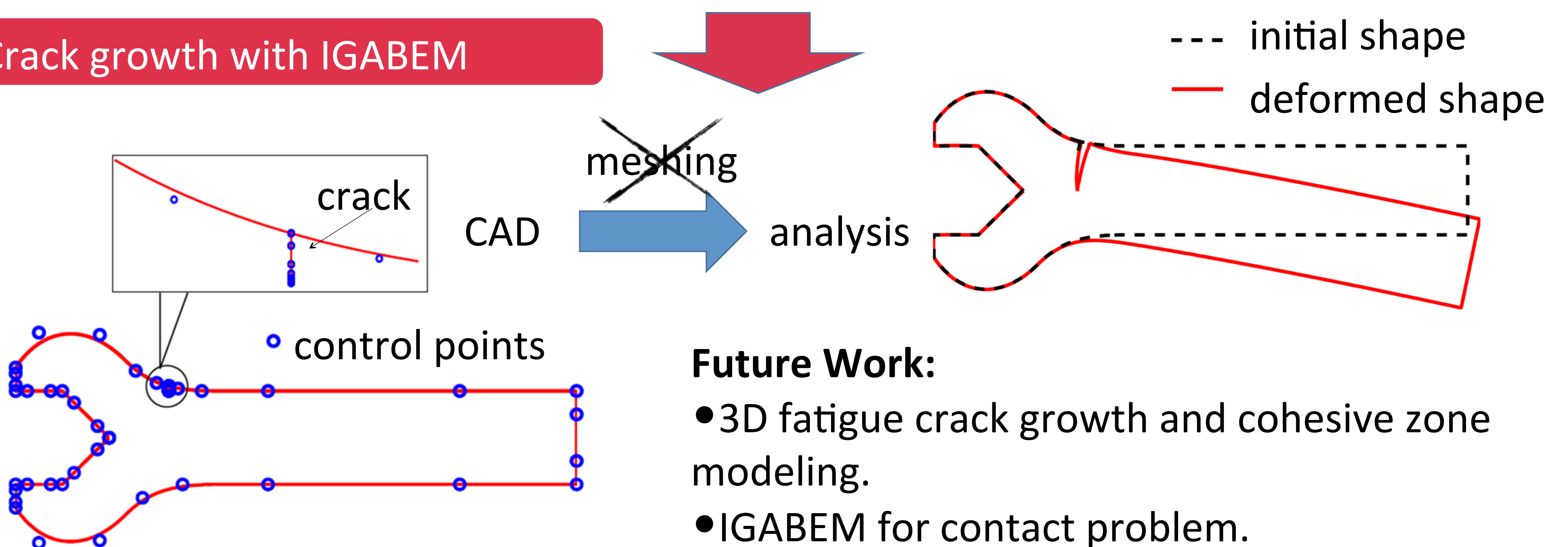
## Isogeometric Boundary Element Method



### Advantages:

- exact treatment of the geometry.
- facilitates design and analysis.
- complete suppression of mesh generation.

## Crack growth with IGABEM



### Future Work:

- 3D fatigue crack growth and cohesive zone modeling.
- IGABEM for contact problem.
- IGABEM – FEM coupling with model reduction.