

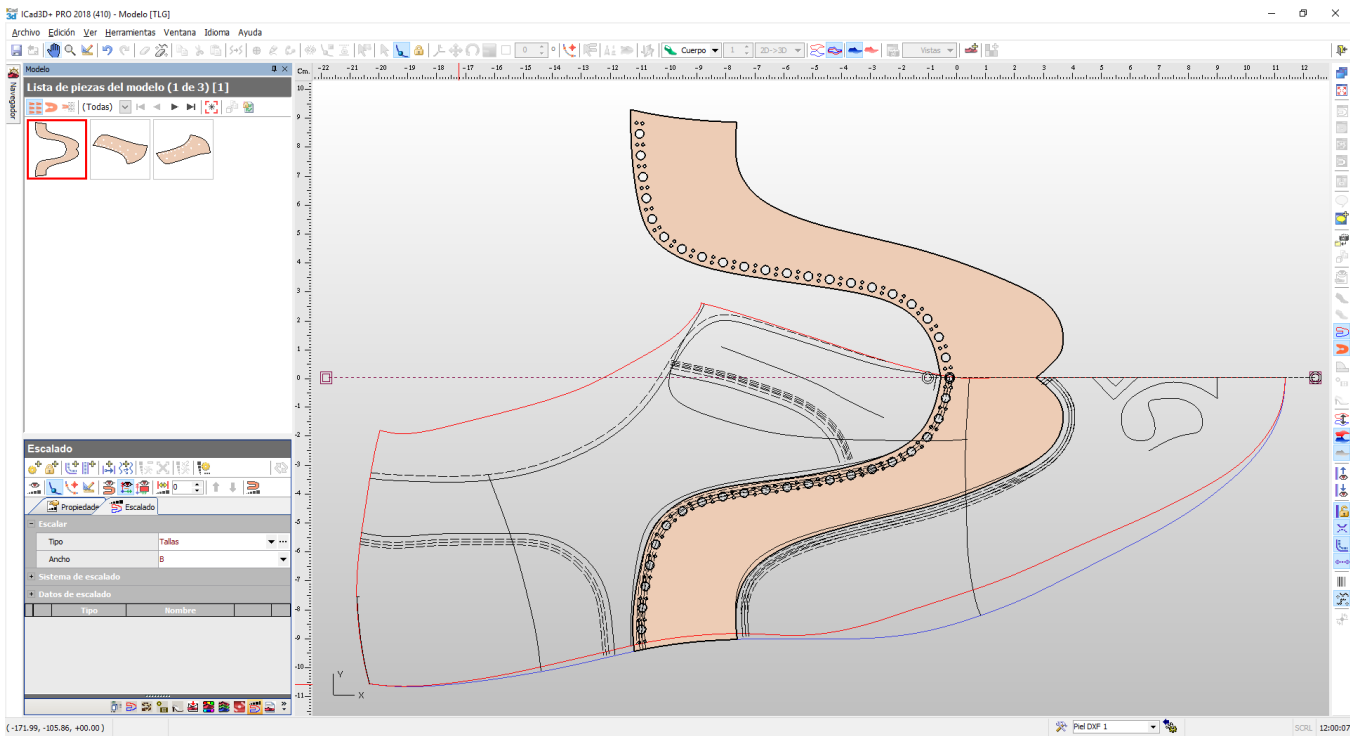
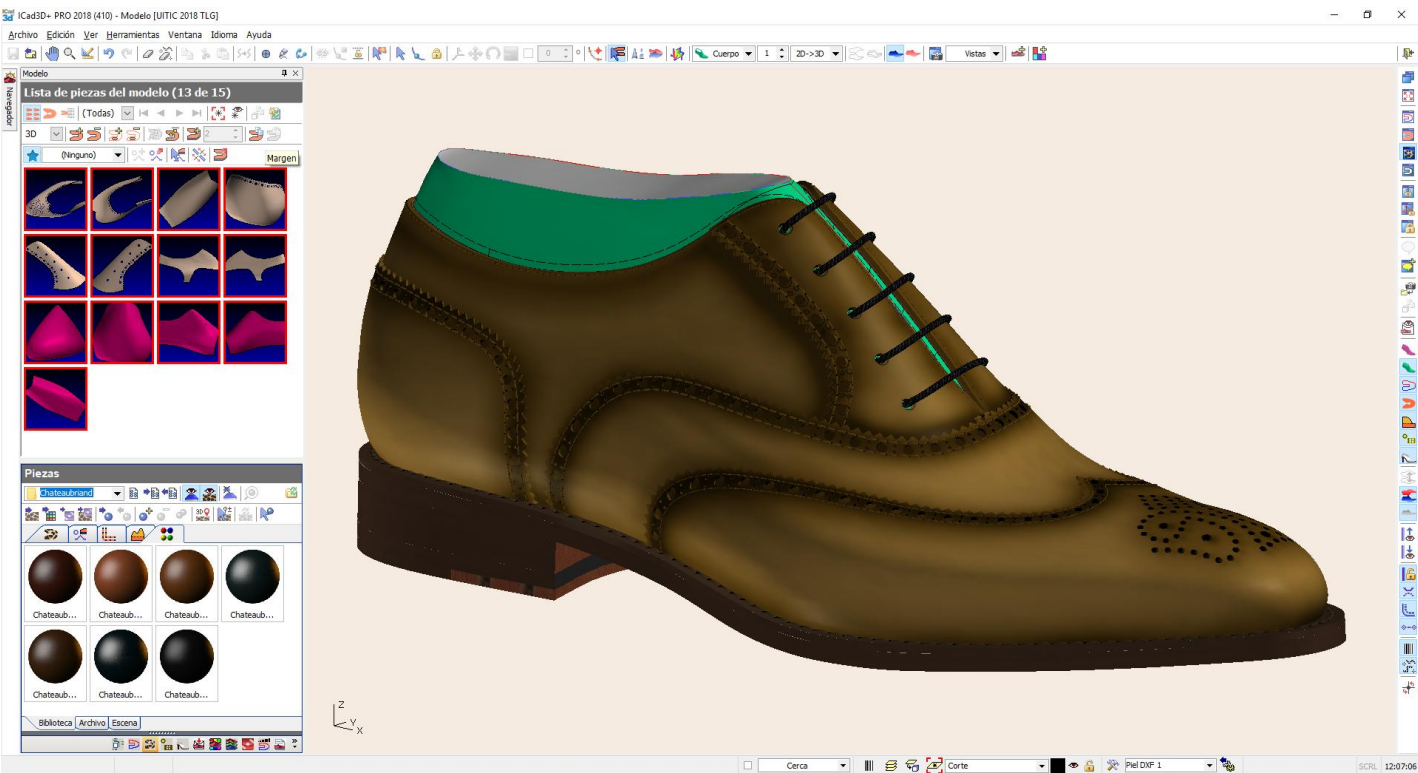
# 3D printing is just one click away for footwear designers

Dr. Miguel Davia Aracil  
Head of Advanced Manufacturing  
Spanish Footwear Technology Institute (INESCOP)

# 3D CAD Systems for footwear

We design footwear with CAD for...

2D information  
**MANUFACTURING**  
- Footwear Production



3D information  
**VIRTUAL RENDER**  
- Online shopping  
- Customized footwear



## 3D Printing in footwear industry

**20<sup>th</sup> UITIC**  
INTERNATIONAL TECHNICAL  
FOOTWEAR CONGRESS

Porto  
2018  
16<sup>th</sup>–18<sup>th</sup>  
MAY

### Footwear components



### Footwear upper (full footwear)





# 3D Printing issues

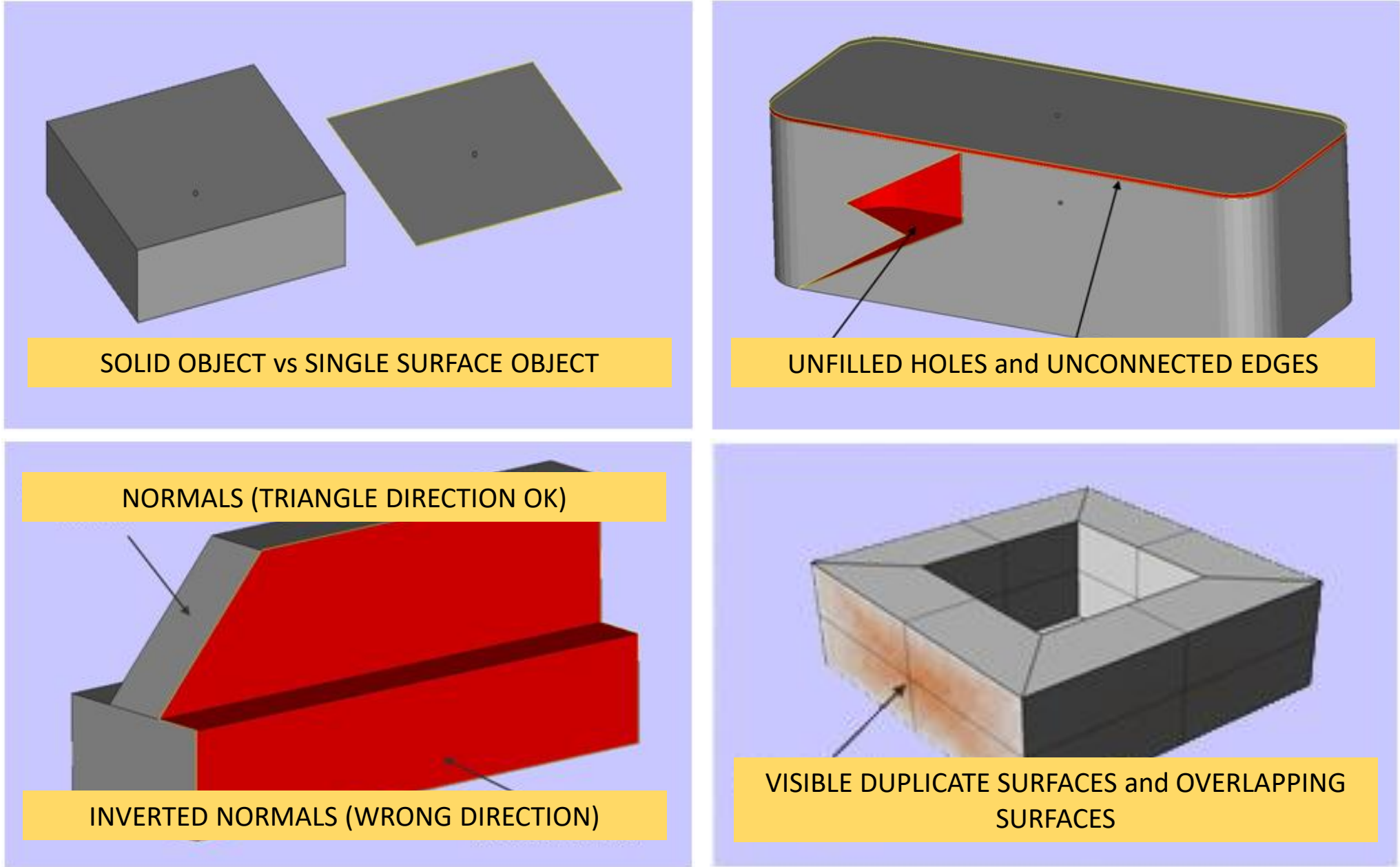
## CAD issues

### Issue nº 1

3D PRINTER NEEDS...



CAD SYSTEMS  
EXPORT  
GEOMETRIC RIGH  
POLIGONAL MESH

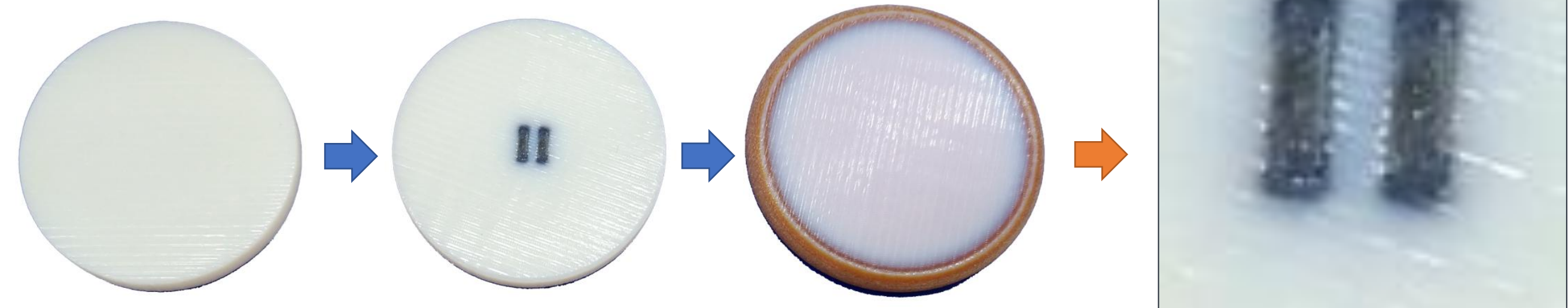


## GEOMETRICAL CONSTRAINTS

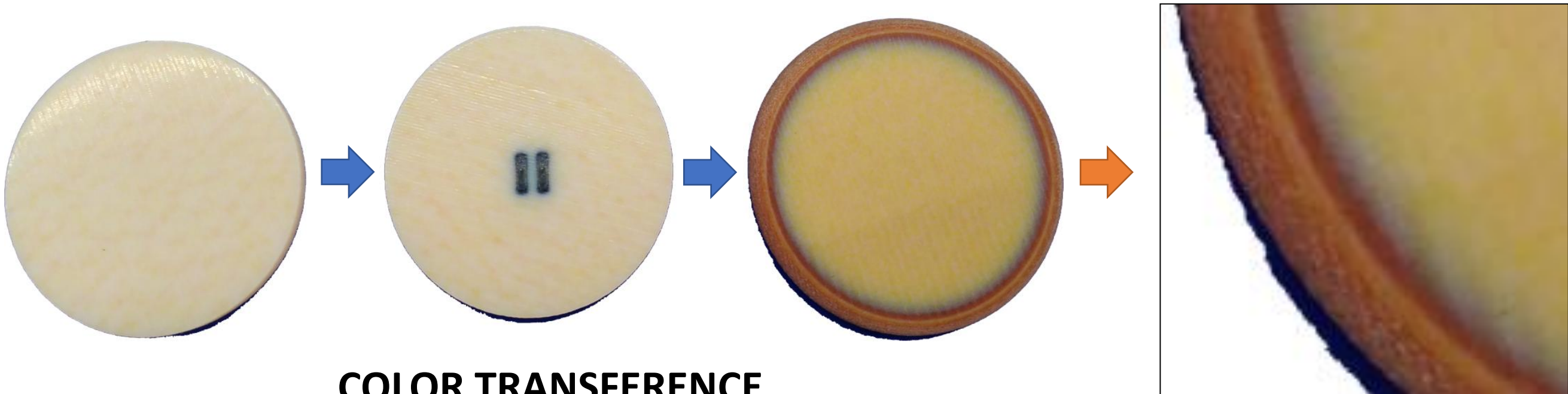
3D Printing issues

3D printing issue  
Issue nº 2

SOLID COLOR / WHITE



TEXTURE COLOR



COLOR TRANSFERENCE

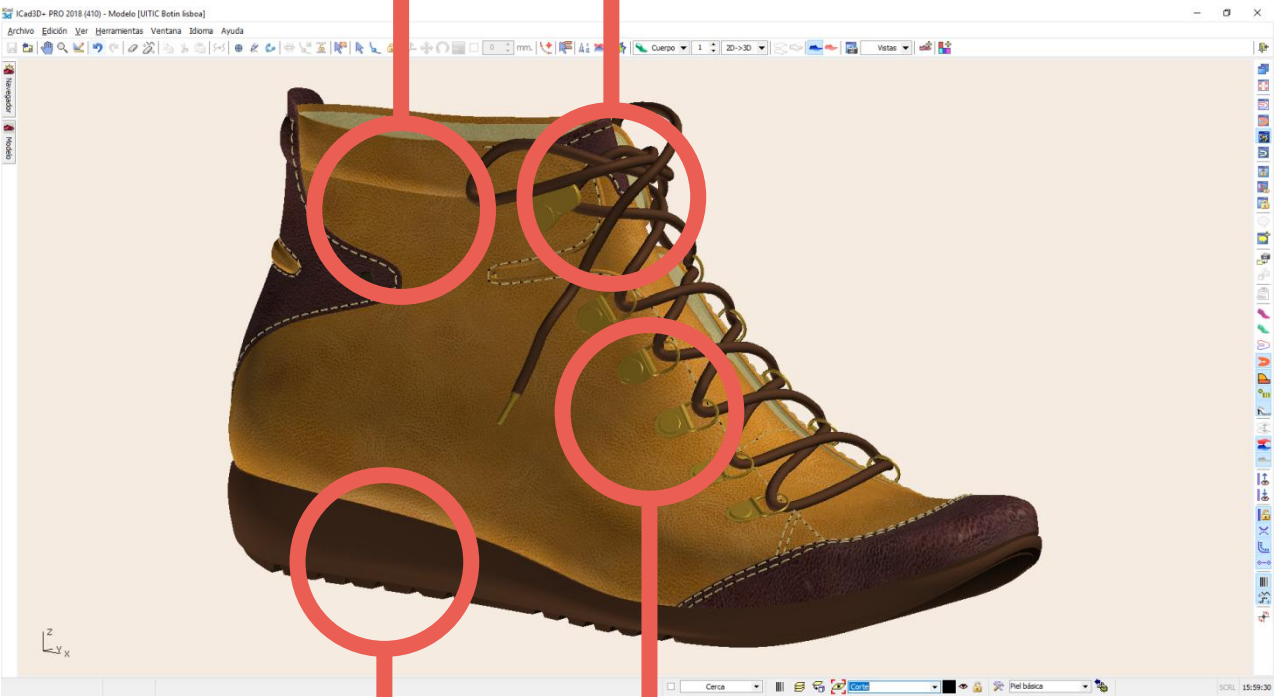


Virtual 3D shoe parts

Hundreds of interconnected elements...

PIECES (include sewings)

SHOELACE

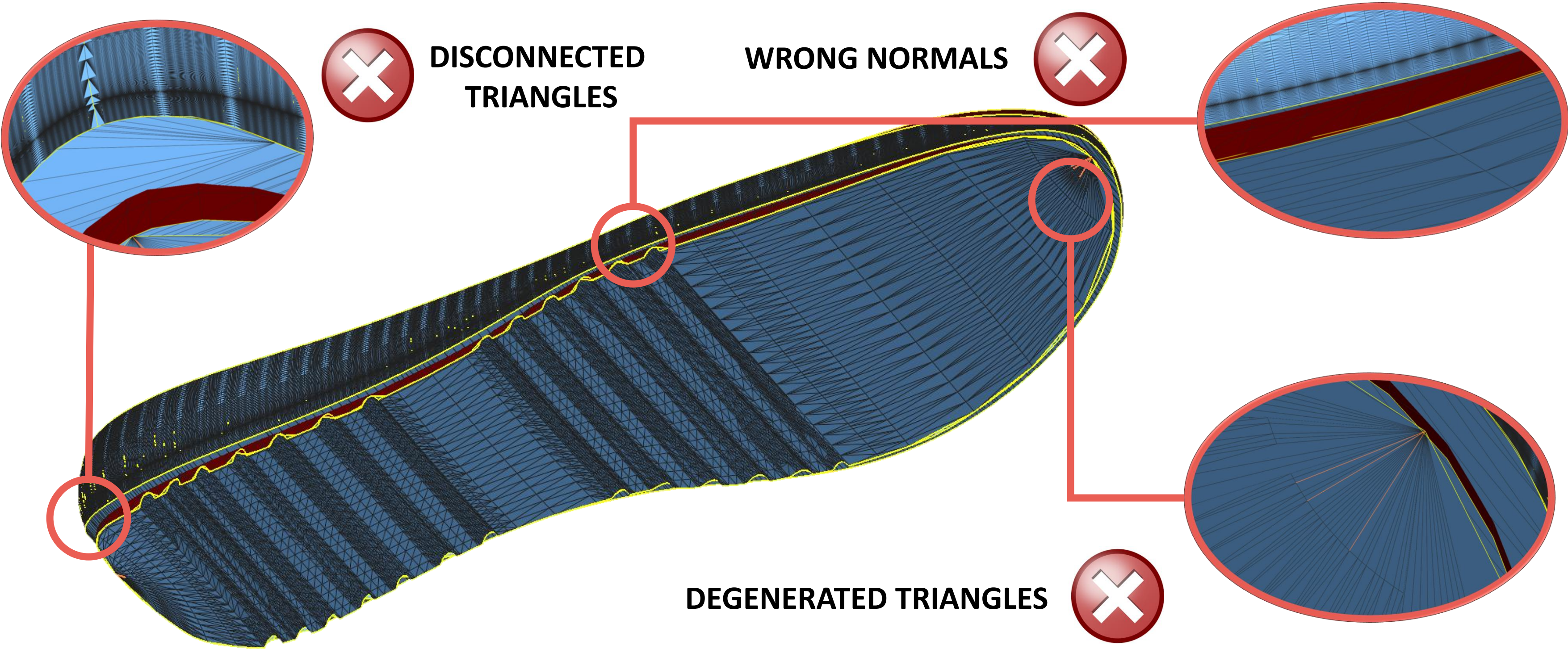


OUTSOLE

ORNAMENTS



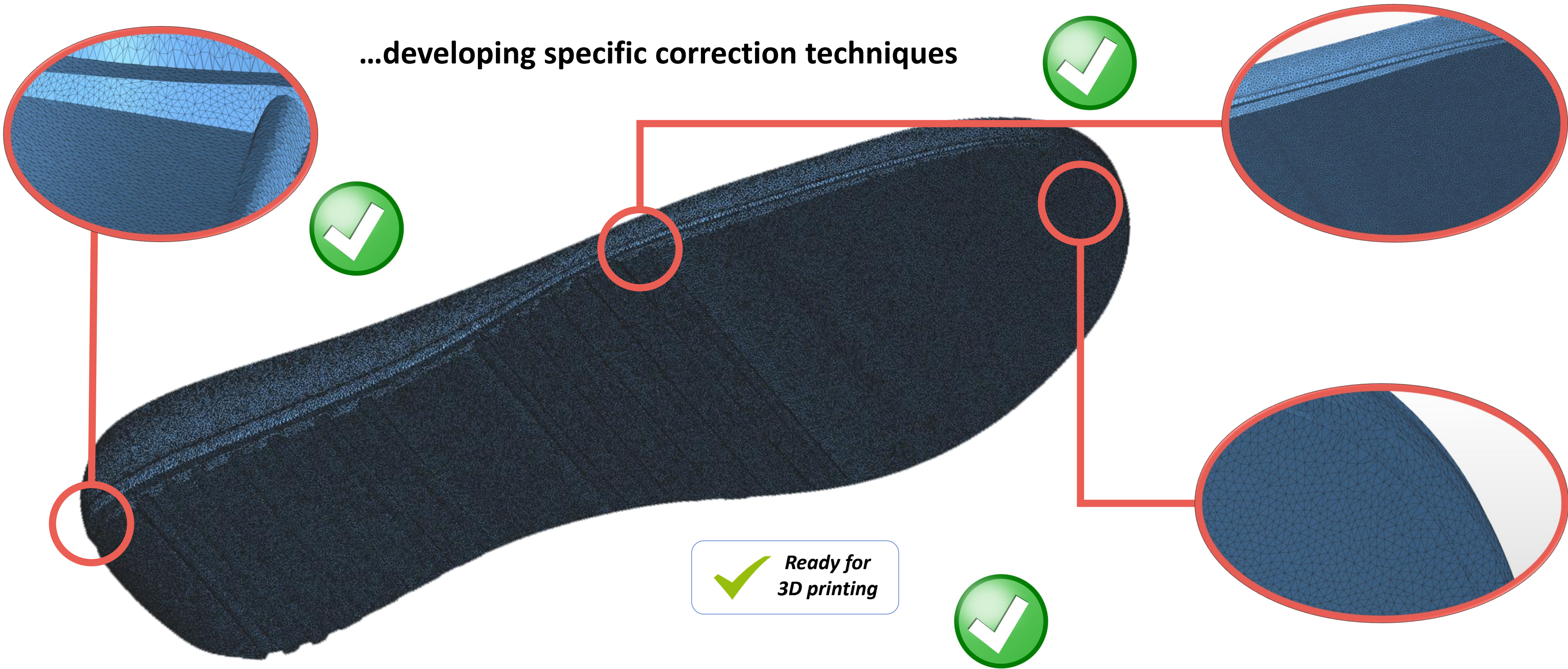
# Usually 3D Printing issues in shoe outsoles





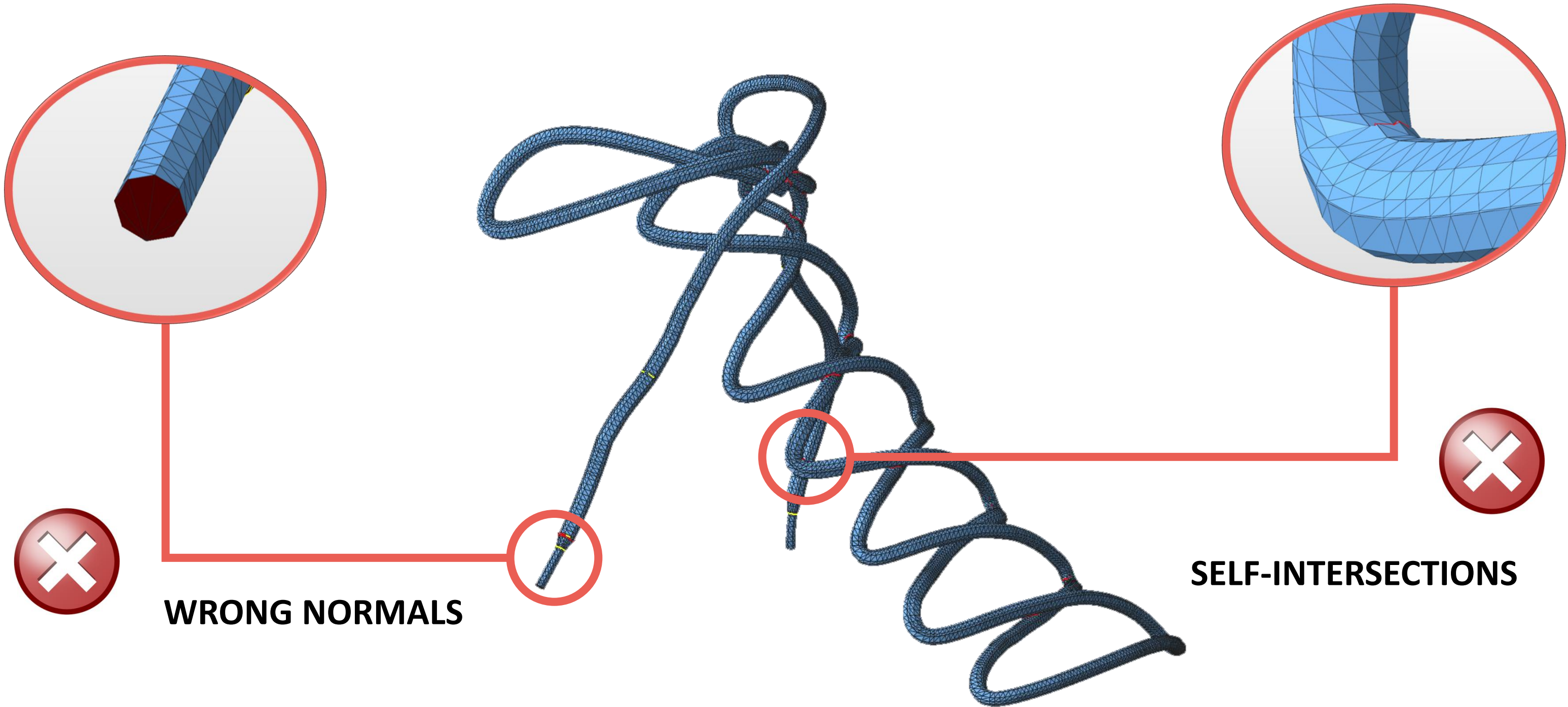
Ready 3D Printing shoe outsoles

...developing specific correction techniques



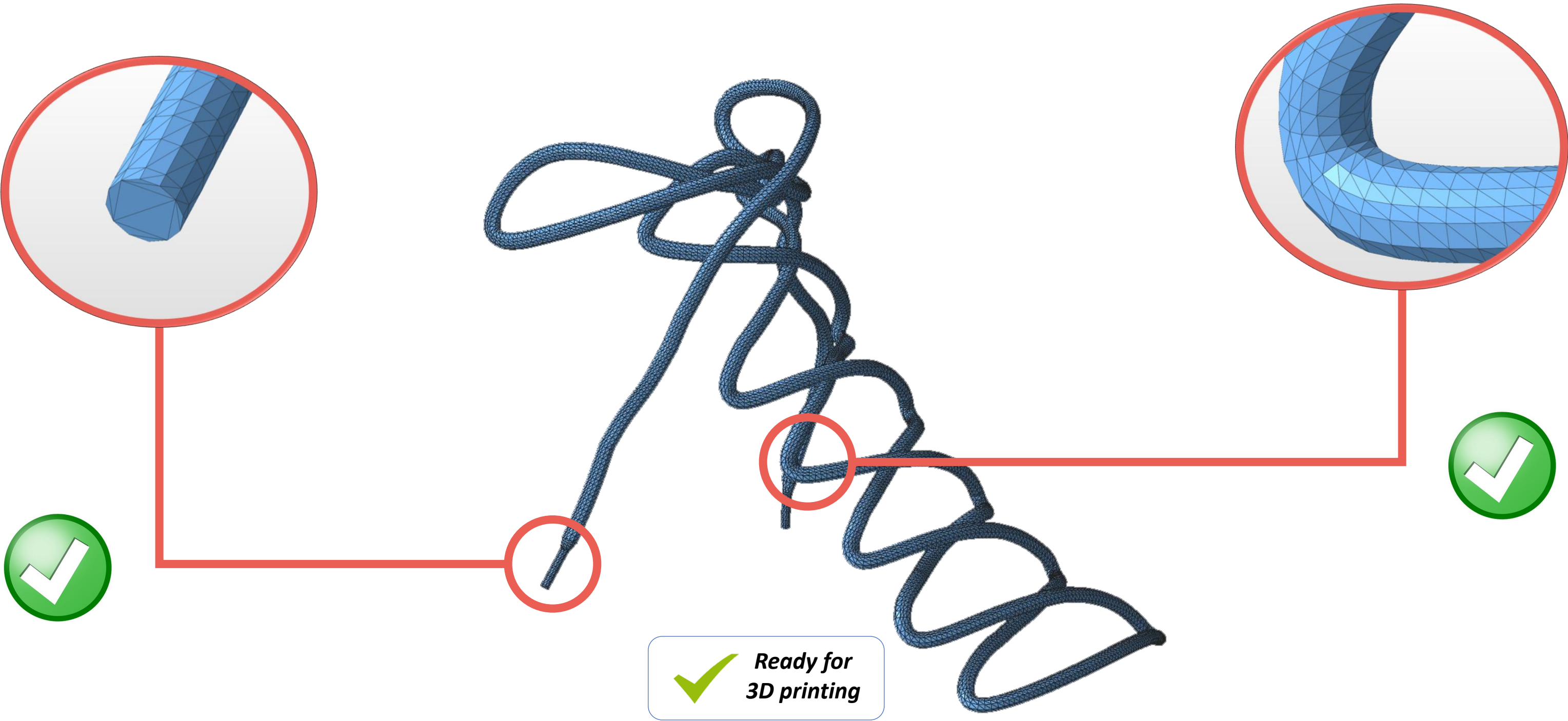


# Usually 3D Printing issues in shoe laces



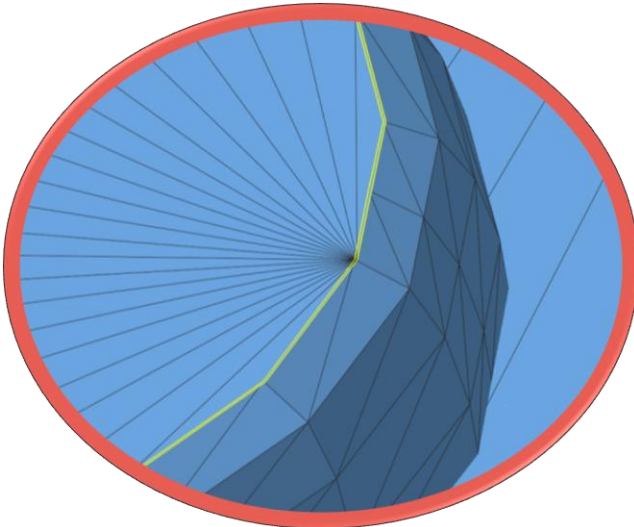


# Ready 3D Printing shoe laces

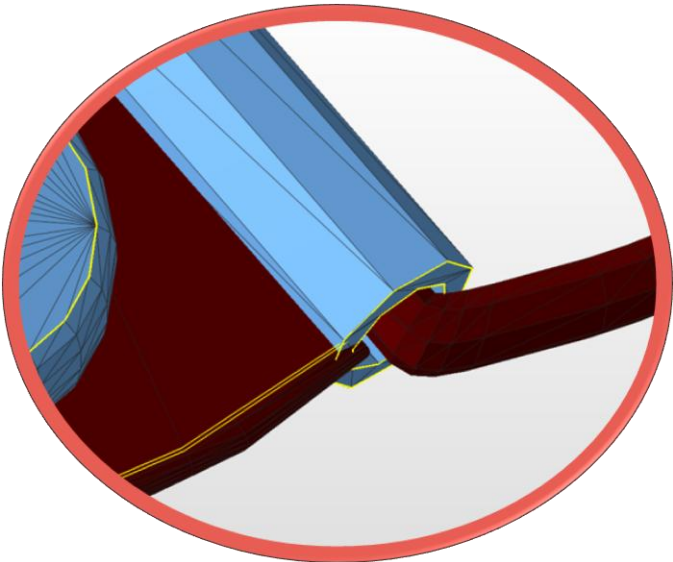
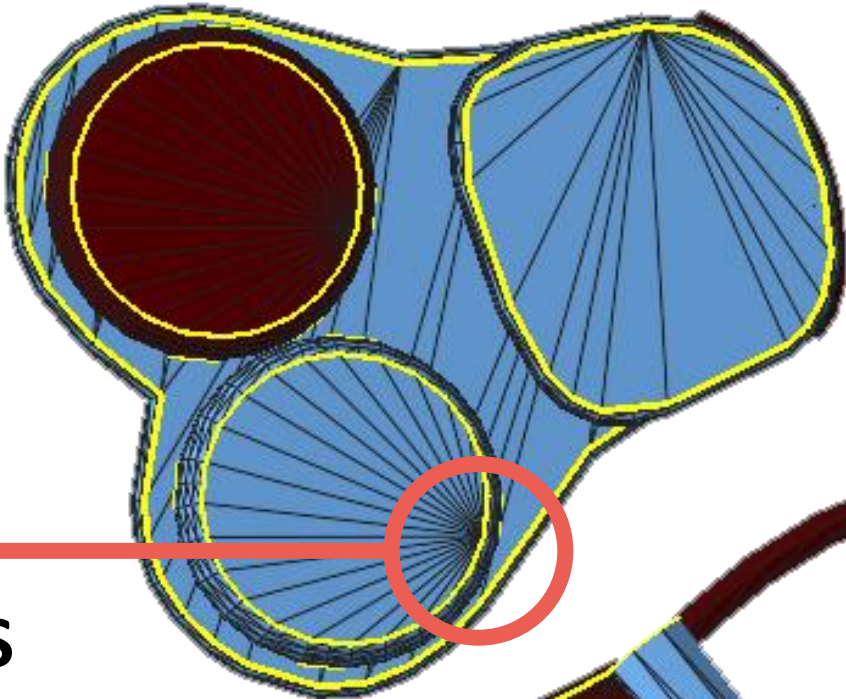




# Usually 3D Printing issues in shoe ornaments



**DEGENERATE TRIANGLES  
AND HOLES**

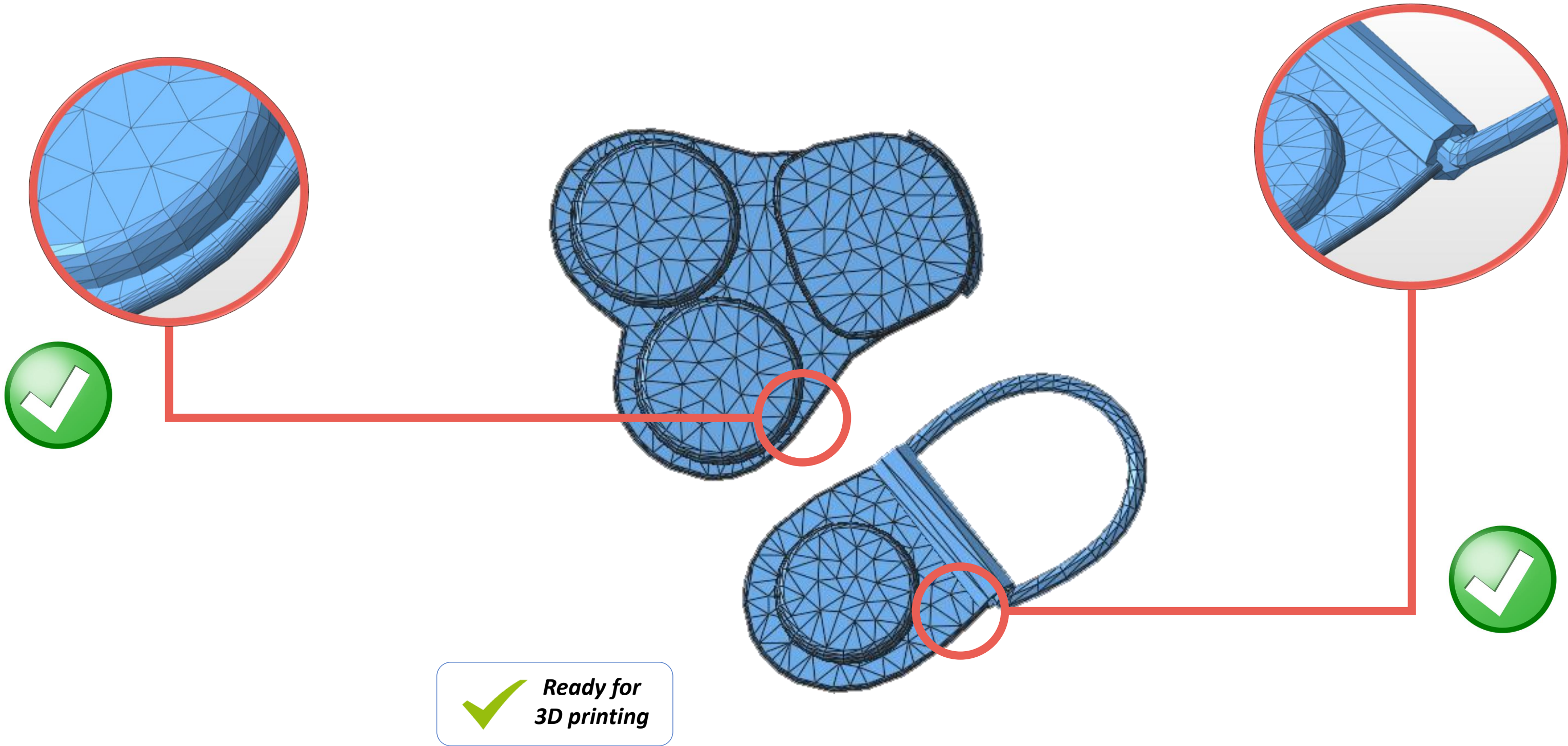


**WRONG NORMALS**



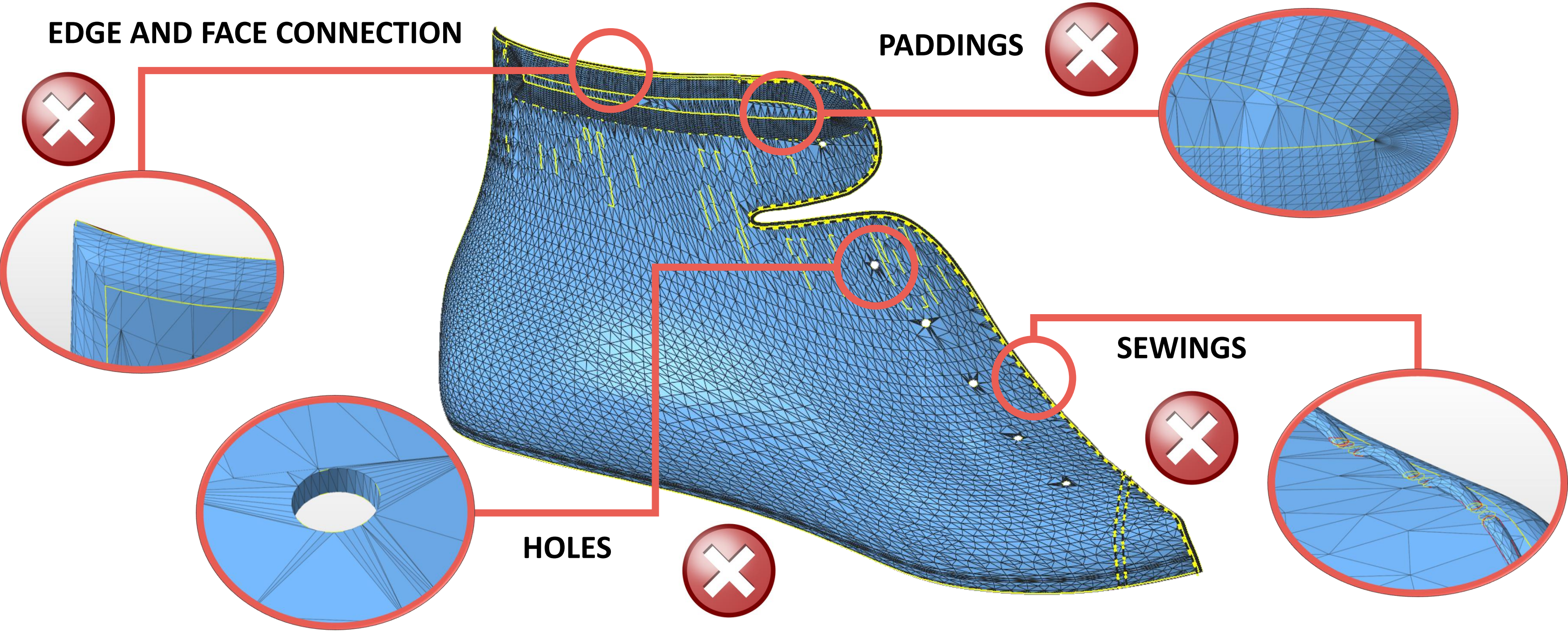


# Ready 3D Printing shoe ornaments





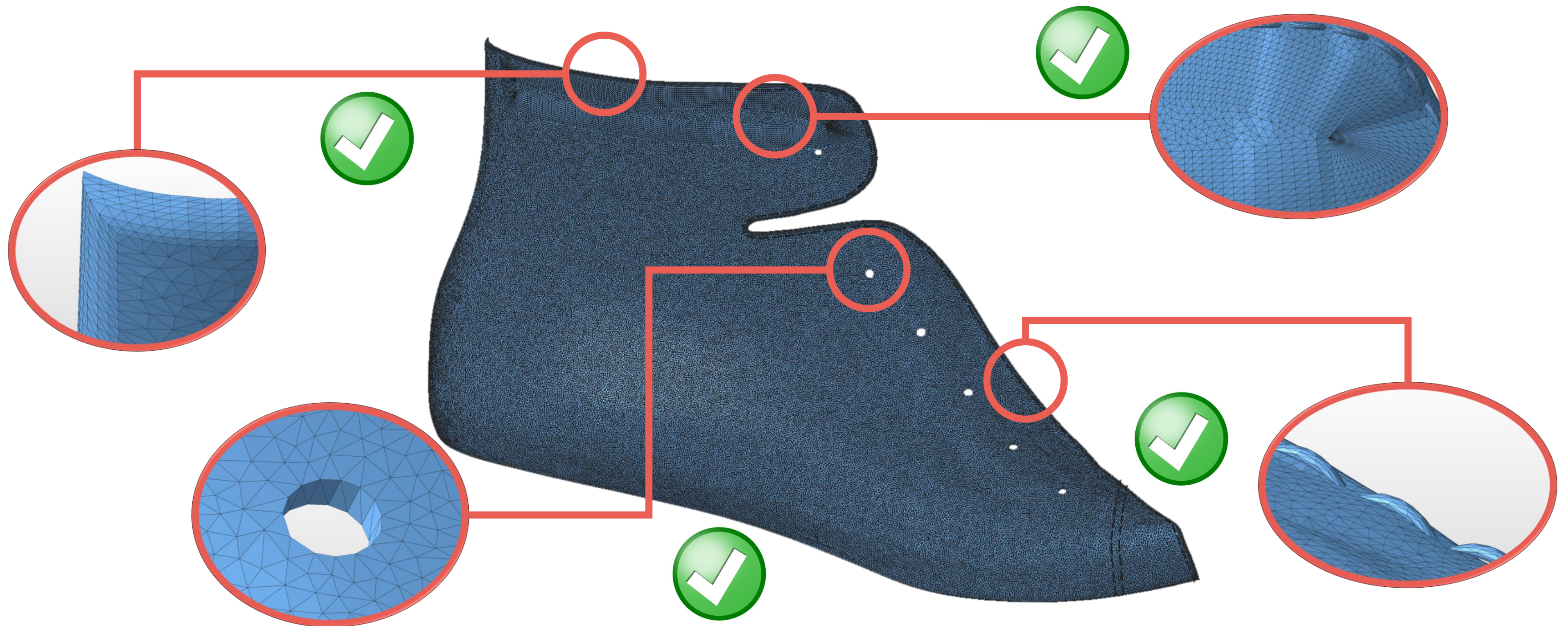
# Usually 3D Printing issues in shoe pieces





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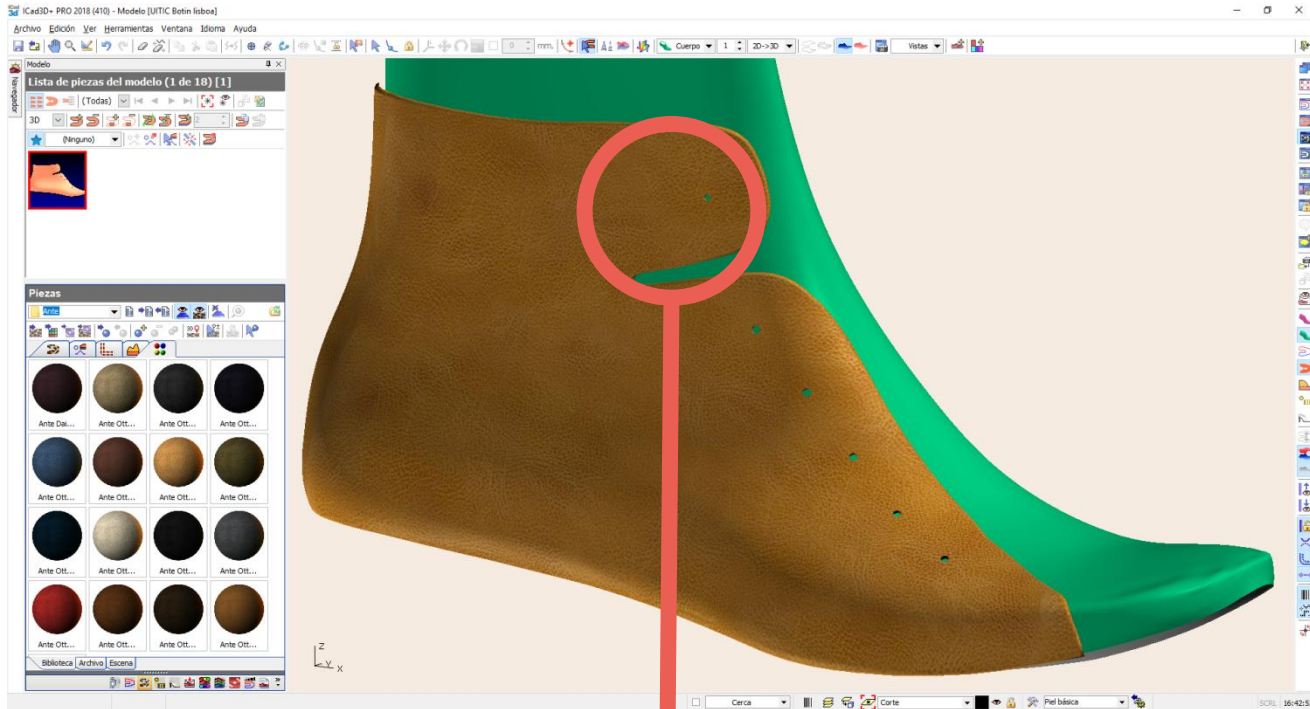
 **Ready for  
3D printing**



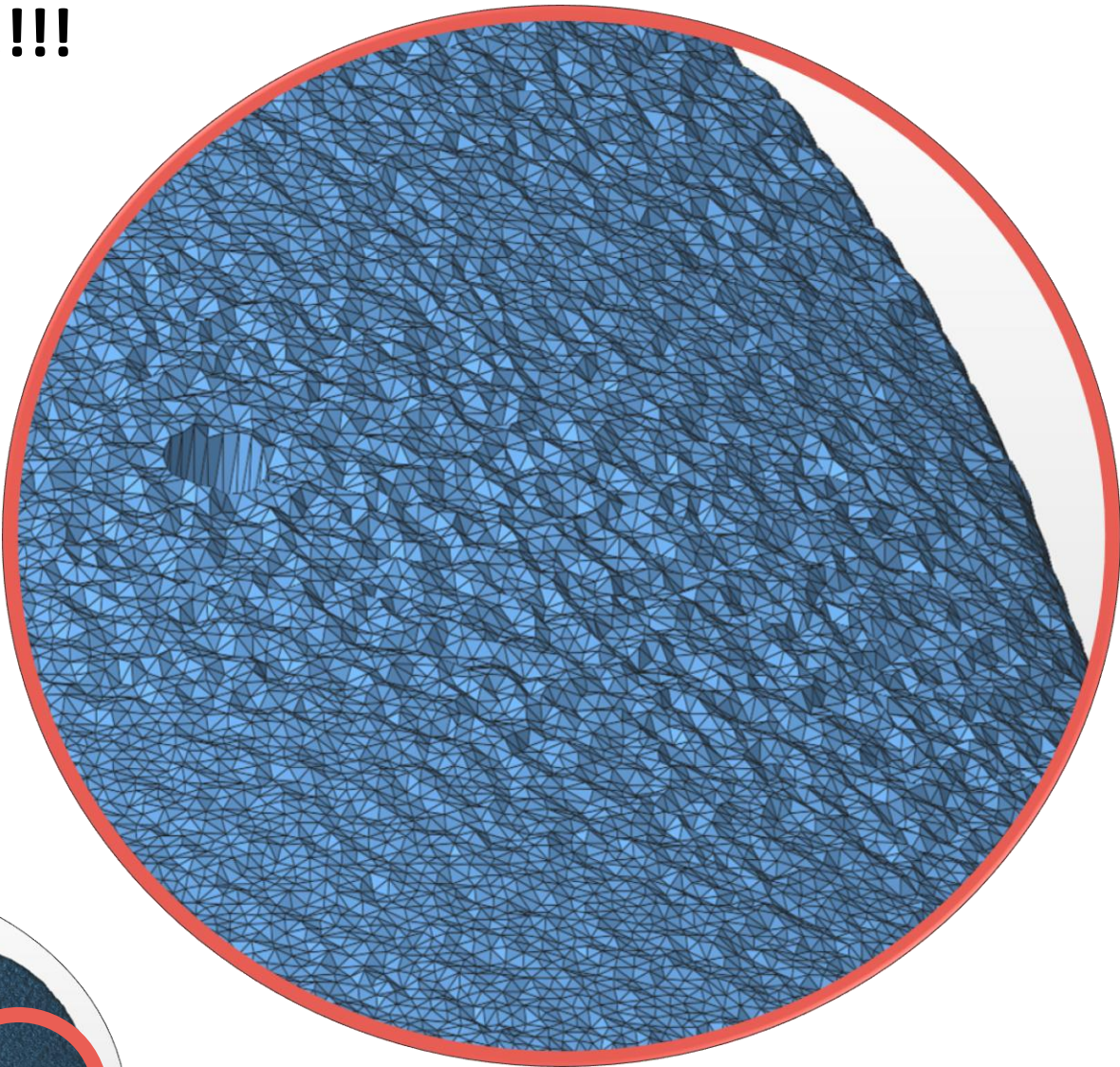
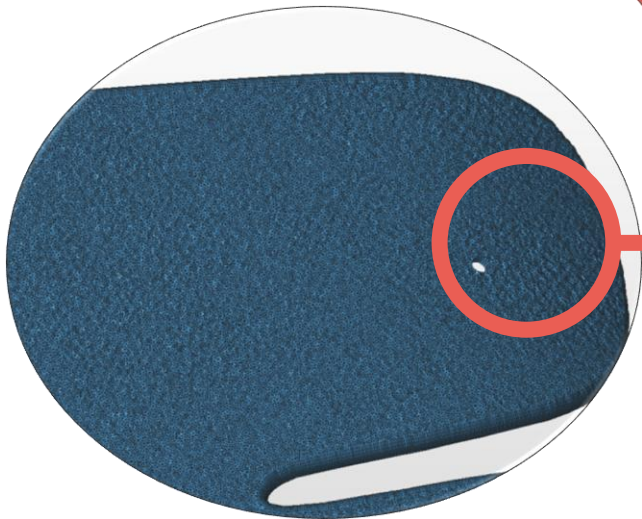


# Advanced textures: geometrical 3D texturing

Not just render simulation...!!!



GEOMETRIC  
3D TEXTURE



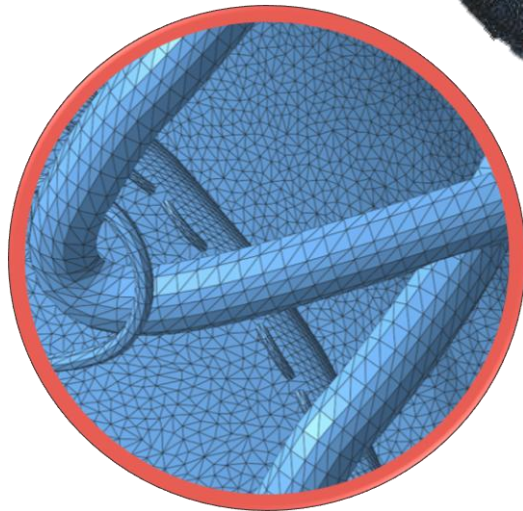
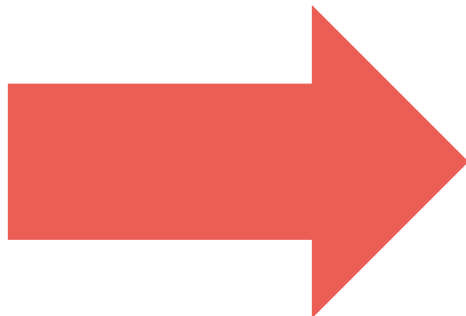
Ready for  
3D printing



FULL Ready 3D Printing shoe model

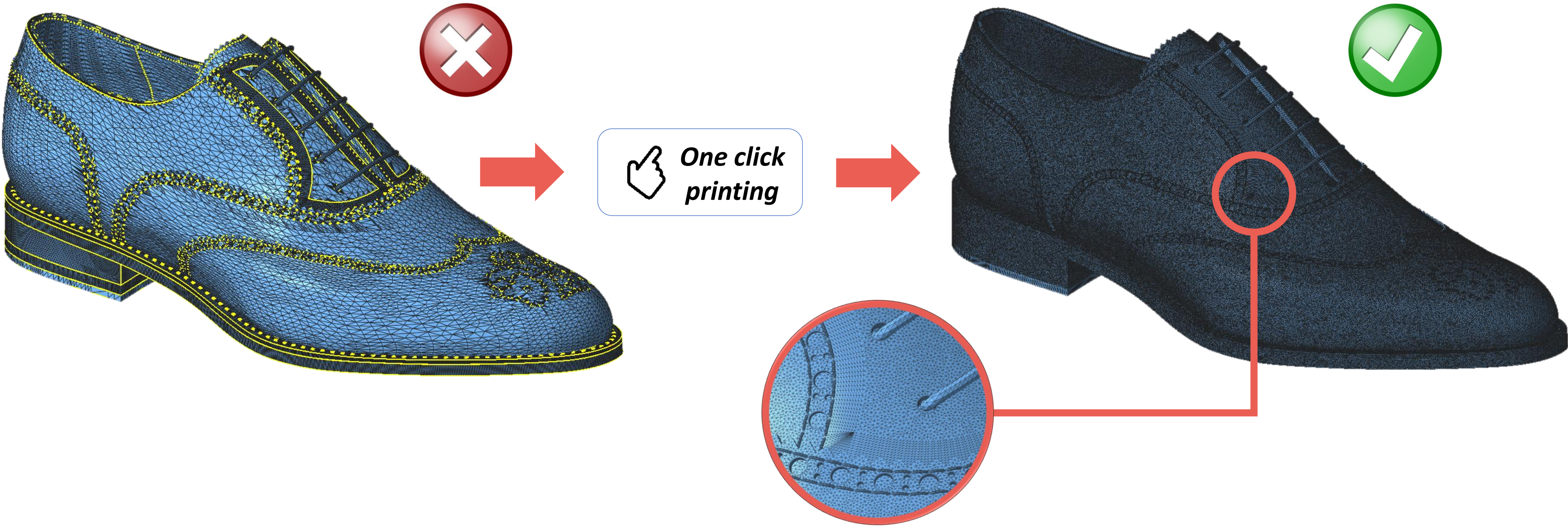


 One click  
printing



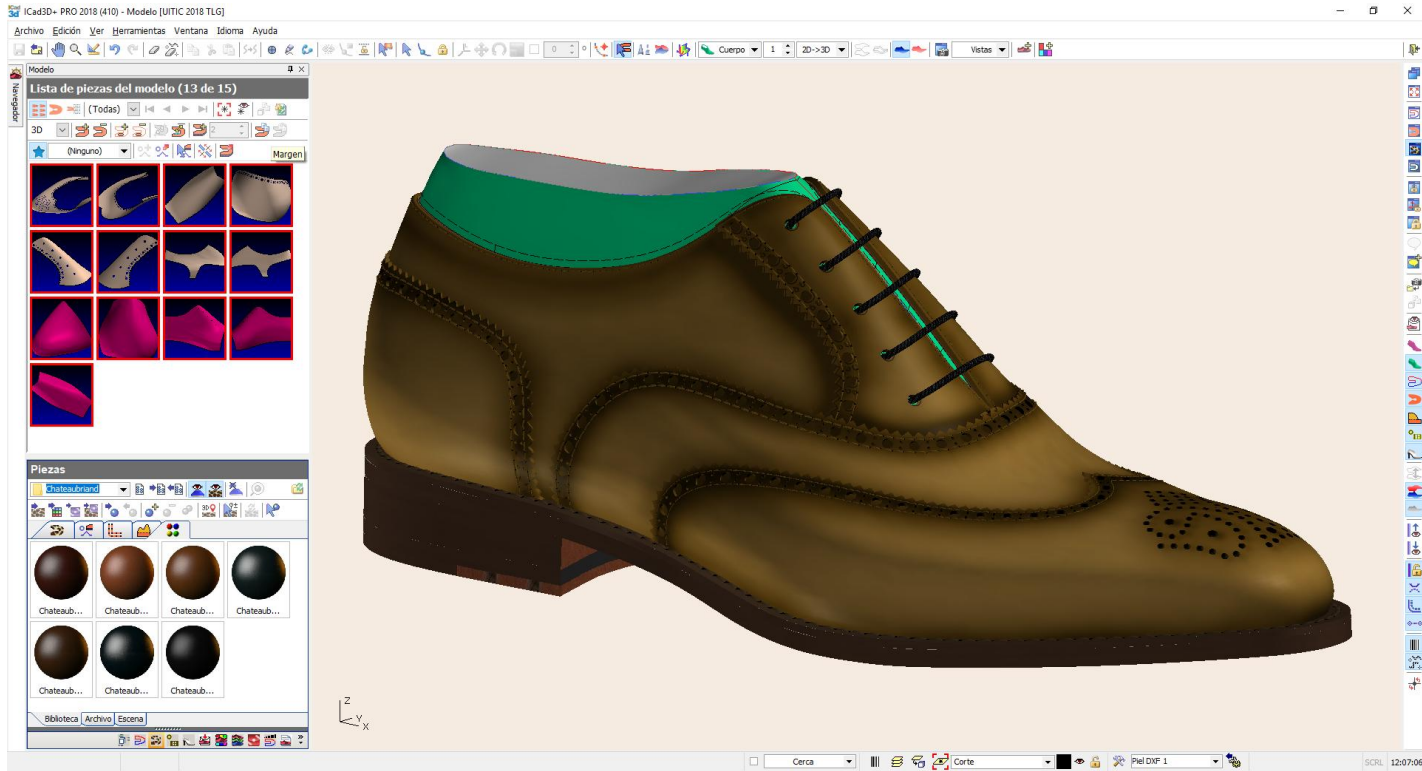


FULL Ready 3D Printing shoe model



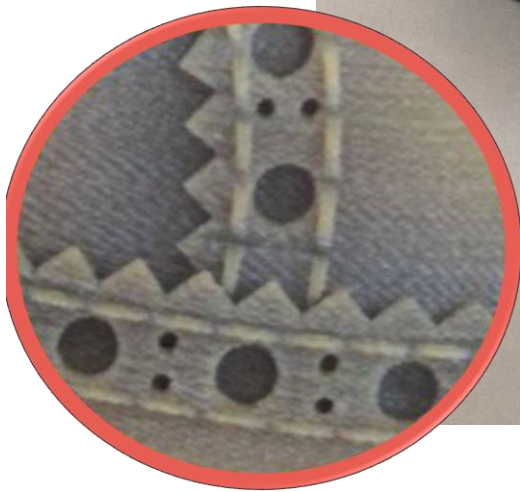


# FULL Ready 3D Printing shoe model



3D shoe model

 One click  
printing



3D printed shoe model

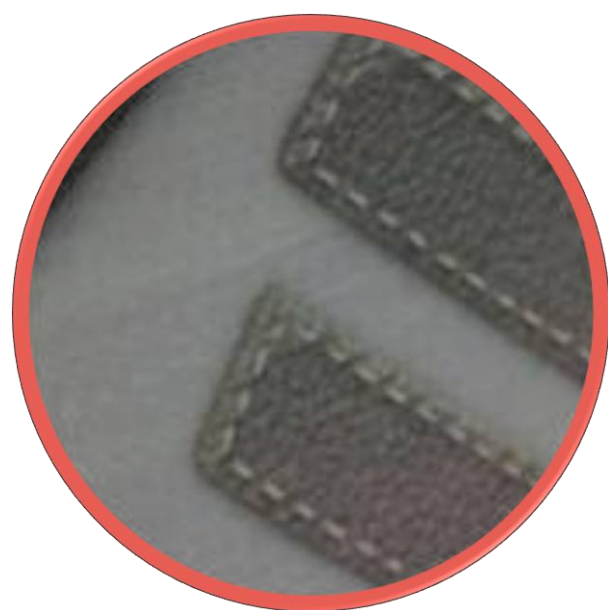


## FULL Ready 3D Printing shoe model

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...with 3D texture applied!!



**One click  
printing**



*3D printed shoe model*

## FULL 3D Printing shoe model using ICad3D+

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MAY



*One click  
printing*

**Color detail...!**



*3D printed shoe model*



## Conclusions

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MAY

### For the success of 3D footwear printing:

- Use CAD 3D systems
- Just one click models export
- Material cost reduction
- New materials

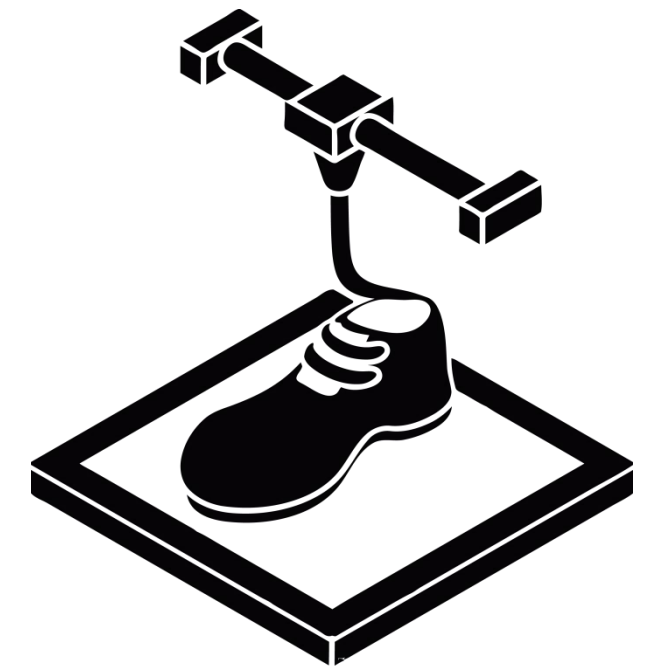


**NOW**



*One click  
printing*

**Cad3d<sup>+</sup>**  
solutions







# Thanks for your attention!

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*www.inescop.es*

