Libre mechanical software — FOSDEM 2021

Fernando Oleo Blanco · FOSDEM 2021, Open Source CAD

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Source: https://video.fosdem.org/2021/D.cad/libre_mech_overview.webm

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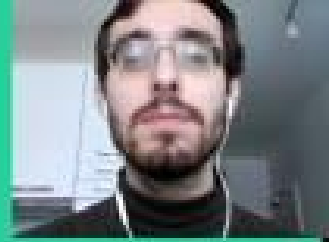
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A (very) quick overview of libre mechanical software

Fernando Oleo Blanco

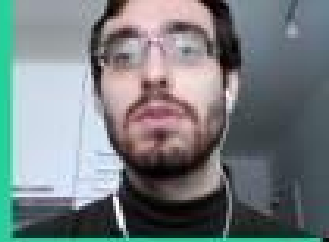
D.cad
2021-02-07





A (very) quick overview of libre mechanical software

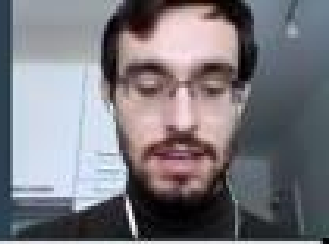
Fernando Oleo Blanco (Irvise)
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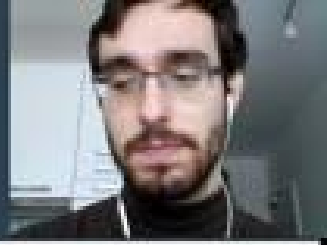
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irvise@irvise.xyz

Disclaimer



- I am just a hobbyist/student!
- I have not used most of this software in depth
- I will focus only in end-user programs
- Logos and trademarks are part of their respective owners
- Of course, software must be available for Linux
- Try them for yourself! I will try to be as impartial as possible
- It could be pretty good to make this a yearly thing. Help welcome!
- Gotta go fast!!!

CAM



LinuxCNC

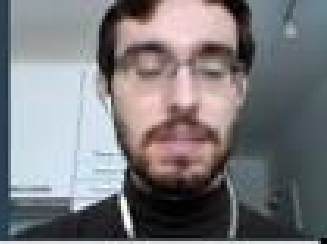
CAMotics

Kiri:
Moto

FlatCAM

Slic3r

CAM



LinuxCNC

CAMotics



Kiri:
Moto

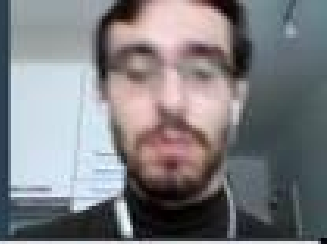


FlatCAM

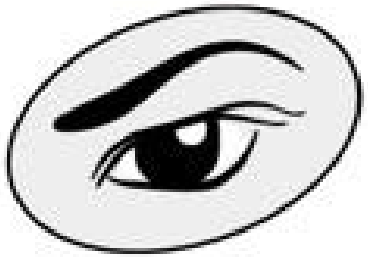


Slic3r

MESHing



MeshLab

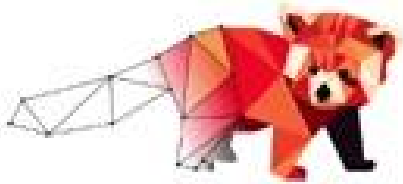


GMSH



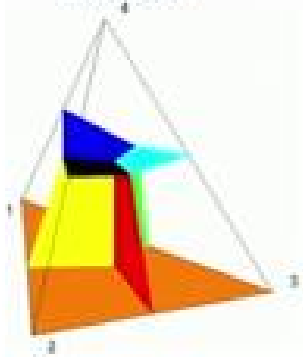


MMG



upgrade
your meshes

TetGen

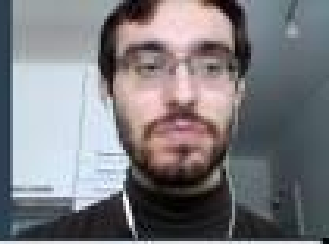


(Old) Cfmesh

libmesh

SnappyHexMesh

Simulation | Mechanical Systems

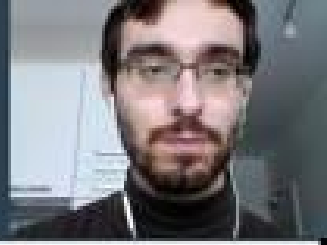


Calculix

code_aster

MBDyn

Simulation | CFD





SU2
code



DualSPHysics

OpenLB

Visualization

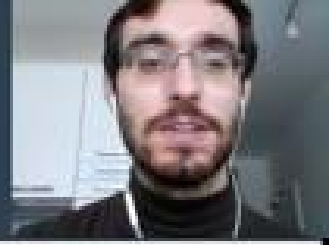


ParaView



blender®

Energy / HVAC related tools



SAM



Ladybug Tools

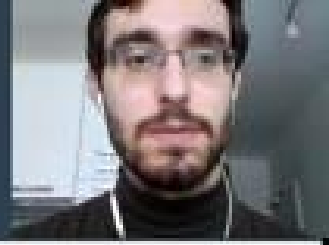


OpenStudio



RADSITE | radiance-online.org

Extras





ITOM



DAKOTA

Explore and predict with confidence.

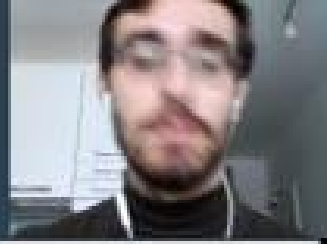
OpenTURNS

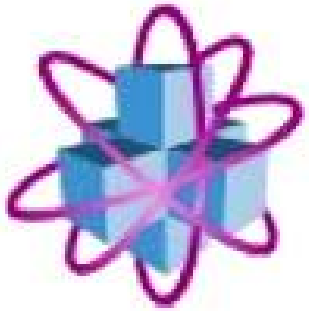


COIN-OR

JuMP

Extras





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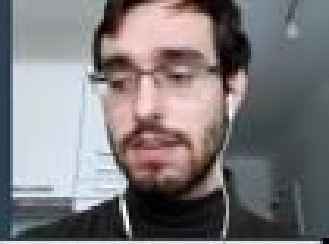
OpenTURNS



COIN-OR

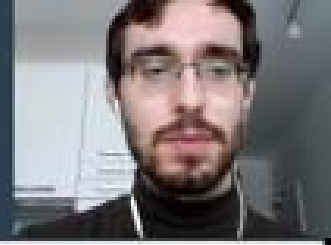
JuMP

Current status | The Good bits



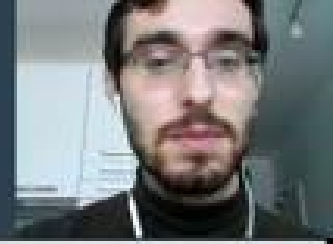
- We are already doing great in research and HPC!
- We have great tools for beginners and small businesses!
- We are incredibly flexible. But everything could be a little bit more integrated
- We can scale. From simple problems to research grade ones
- There are a ton of low-level quality tools! (Not covered in this talk)

Current status | Bad bugs



- Industry acceptance/usage (very) low
- No official support! (Not quite)
- 5 Axis CAM, PLC programming :'(
- Low integration of the different tools. Bravo to Salome and FreeCAD
- User interfaces are lagging behind
- Some big domains are not covered, for example, turbomachines

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What can I do?



- Use the programs!
- Take part in the community! Help people in the forums, write blogs…
- Tutorials, documentation and examples
- Feedback: opinions, testing unreleased versions, new features…
- Spread the word, show what we are capable of
- Translate
- Code?
- Donations?