Become an orchestra composer using FOSS!

Lorenzo Miniero   Music Production devroom @ FOSDEM   February 1, 2026

Basically "Part 2." of this presentation

Become a rockstar using FOSS!
(Or at least use FOSS to write and share music for fun!)

Lorenzo Miniero
@lminiero@fosstodon.org

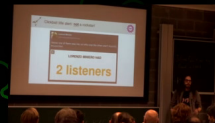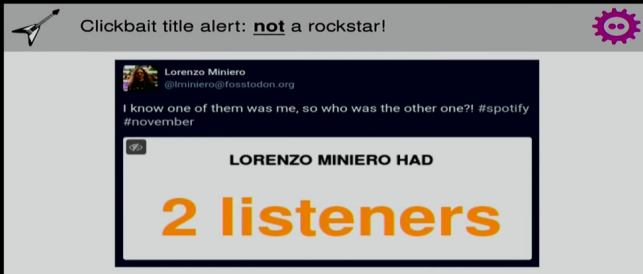FOSDEM 2023, Open Media devroom
4th February 2023, Brussels

Spoiler alert: not a composer either...

https://archive.fosdem.org/2023/schedule/event/om_music/

So who am I, then?

Lorenzo Miniero
- RTC developer (Janus/imquic)
- Hobbyist musician
- Love rock + orchestral!

Contacts and info
- fosdem@lminiero.it
- https://fosstodon.org/@lminiero
- https://bsky.app/profile/lminiero.it
- https://music.lminiero.it
- https://video.lminiero.it

Virtual Orchestration

- Scoring parts + Using virtual instruments = Orchestral sounds
  - A real orchestra can host up to 100 musicians
  - Even more instruments, spread in different sections
  - Each instrument can have a huge variety in tone and expressivity

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- Can sound more or less realistic
  - Quality of samples matters (some libraries are *expensive*) but is not enough
  - Proper arrangement can help make it sound more realistic, though
  - And yes, sometimes it is a bit of smoke&mirrors and/or misdirection

What can a real orchestra look like?

- Woodwinds
  - 2-4 flutes
  - 2-4 oboes
  - 2-4 clarinets
  - 2-4 bassoons
- Brass
  - 4-8 horns
  - 2-6 trumpets
  - 2-6 trombones
  - 1-2 tubas
- Percussions
  - 1 timpani + drums
  - 1 cymbals + more

- Keyboards
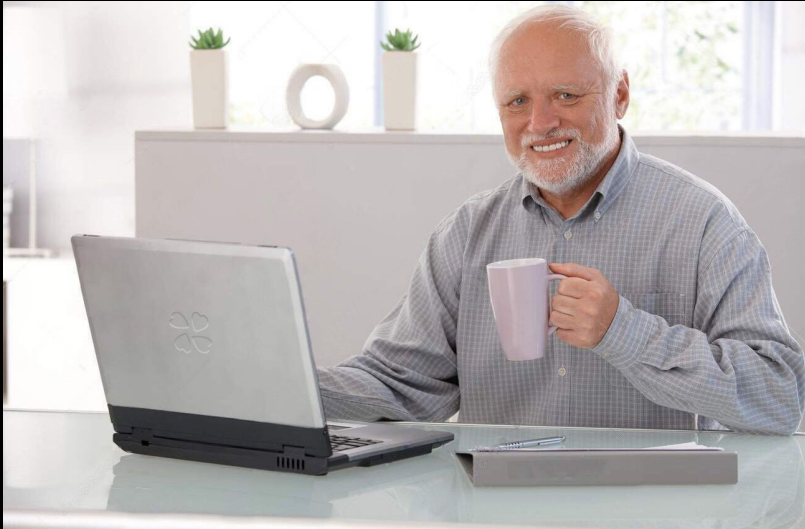 - 0-1 piano
  - 0-1 organ and
  - 0-1 celesta
  - …
- Strings
  - 16-18 1st violins
  - 14-16 2nd violins
  - 12-14 violas
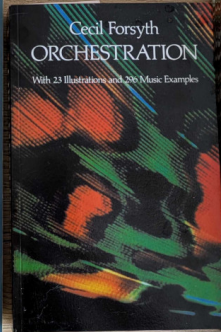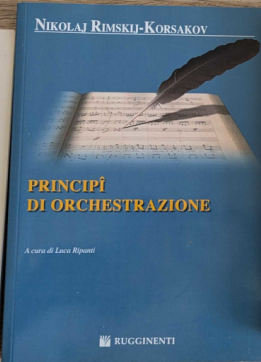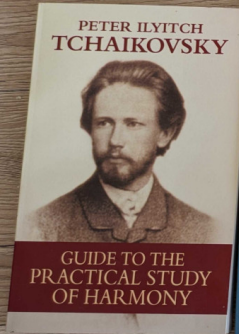 - 10-14 cellos
  - 8 double basses
  - 1-2 harps

From this…

… to this!

Not a bad idea to do some homework

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https://www.schaffter.ca/pdf/linux-midi-orchestration.pdf

Trying to write a score

https://lilypond.org/

A simpler WYSIWYG approach: MuseScore

https://musescore.org/

Can't we get some better sounds?

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  - Rather than synthetic sounds, why not use samples/libraries?

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- As we mentioned, virtual orchestration relies on virtual instruments
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  - Rather than synthetic sounds, why not use samples/libraries?
- A ton of expensive libraries out there, but some good free ones too
  - BBC Symphony Orchestra Discover (VST/NKS)
    - https://www.spitfireaudio.com/bbc-symphony-orchestra-discover
  - Sonatina Symphonic Orchestra (SFZ)
    - https://github.com/peastman/sso
  - Versilian Studios Chamber Orchestra Community Edition (SFZ)
    - https://versilian-studios.com/vsco-community/
  - Virtual Playing Orchestra (SFZ)
    - http://virtualplaying.com/virtual-playing-orchestra/
  - Muse Sounds (??)
    - https://www.musehub.com/muse-sounds

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- Scripts for different instruments in different sections
  - Woodwinds, brass, percussions, vocal, strings
  - Solo instruments vs. sections (e.g., flute vs flutes)
  - Samples for different articulations (e.g., staccato, tremolo, pizzicato, etc.)
  - Ability to switch attach and articulations (SFZ syntax, CC, keyswitching)

A VPO template for Ardour

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- Pre-created MIDI tracks for many instruments (2 flutes, 2 oboes, …)
  - `sfizz` LV2 used to assign VPO sounds to instruments
  - Different tracks for different string articulations
  - Panning of instruments to simulate stage presence
  - "DragonFly Reverb" LV2 busses to give proper distance (front, middle, back)

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- Tweaked for my own needs
  - Single track for grouped instruments (e.g., 1 "flutes" vs. 2 "flute")
  - "Standard" SFZ files (albeit customised) instead of "Performance" ones
  - Articulation changes on the same track, via custom MIDI CC
  - Added more tracks that I use regularly (e.g., piano, guitars, drums, etc.)
  - Basic EQ on all tracks to avoid too many frequencies in the same place

Stage Presence (panning + reverbs)
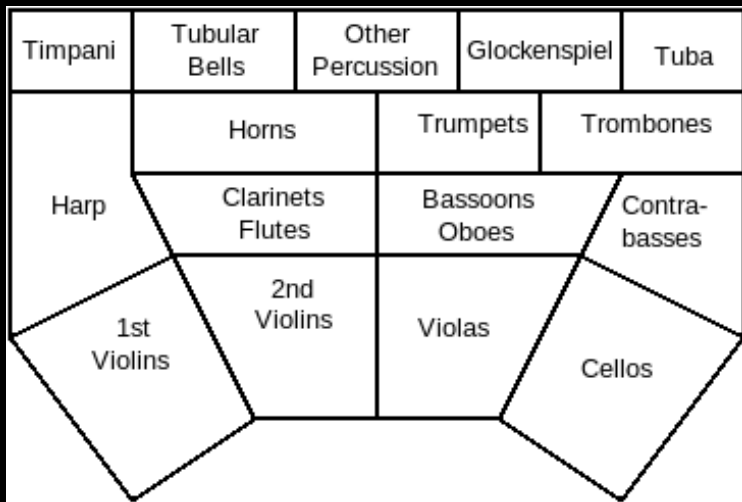
From MuseScore to Ardour (and VPO)

- MuseScore is fine for scoring, but I need those tracks in Ardour (DAW)
  - Actual virtual orchestration happens there (MIDI-to-audio)
  - This is where mixing/mastering happens too (there may be other instruments)

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[1]https://discourse.ardour.org/t/cleopatra-ep-rock-opera/110135/3?u=lminiero

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  7. Balance and fine tune *ad libitum*, like there's no tomorrow!

Adapting VPO's SFZ files for articulations

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- Automating articulation changes in DAW a bit of a manual process
  - Custom MIDI actions in MuseScore are hard to add, and don't always work
  - All articulation changes removed from MuseScore MIDI tracks
  - Manually added using MIDI CC automation in Ardour

Lost Horizon (symphonic poem)

https://soundcloud.com/lminiero/lost-horizon

"All I want for Christmas is Odin"

https://video.lminiero.it/music/aiwfcio/

Cleopatra (symphonic metal)

https://music.lminiero.it/cleopatra/

Experimenting with BBC SO Discover

BBC Symphony Orchestra Discover

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- Quite nice for blending purposes (*with* VPO, instead of replacing it)
  - Extended my template to add additional audio tracks for BBCSO instruments
  - Rendering in Carla + LinVST $\longrightarrow$ recording in Ardour

R U There? (progressive rock)

https://music.lminiero.it/r-u-there/

Next step: play with Muse Sounds?

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- … and MuseScore 4 (which not everyone is happy with)
  - Lacks features compared to MuseScore 3 (no JACK 🙁), unstable for some (?)
  - https://musescore.org/en/node/334701
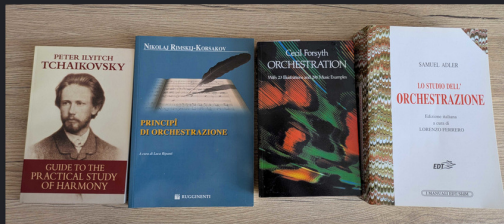
Read in detail (slightly outdated) here!

https://blog.lminiero.it/virtual-orchestration/

Thanks! Questions? Comments?
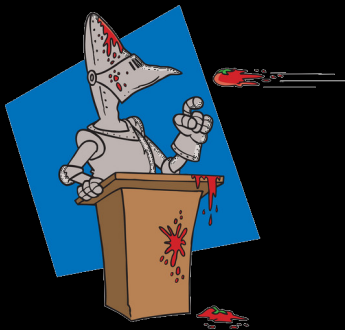
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