



Become an orchestra composer using FOSS!

Lorenzo Miniero Music Production devroom @ FOSDEM February 1, 2026

Basically “Part 2.” of this presentation



FOSDEM'23



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 🍷

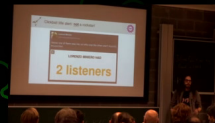
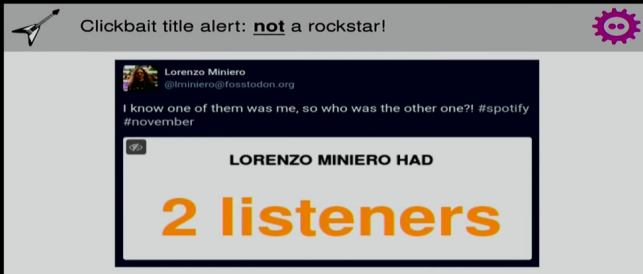


https://archive.fosdem.org/2023/schedule/event/om_music/

Spoiler alert: not a composer either...



FOSDEM'23



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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 - Do you know 100 musicians willing to play your music? I don't!
 - Much easier (and cheaper) to write a score and have your computer perform it
- 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
- ...

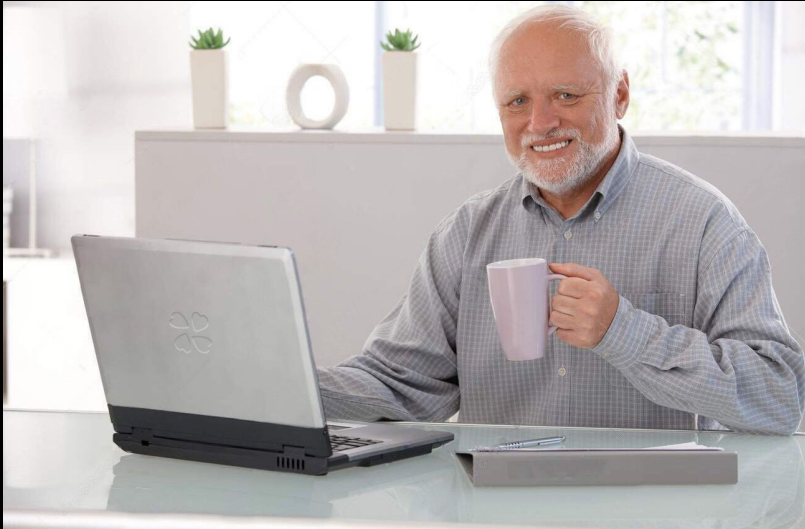
- Strings

- 16-18 1st violins
- 14-16 2nd violins
- 12-14 violas
- 10-14 cellos
- 8 double basses
- 1-2 harps

From this...



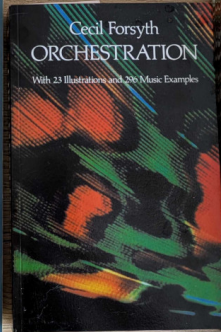
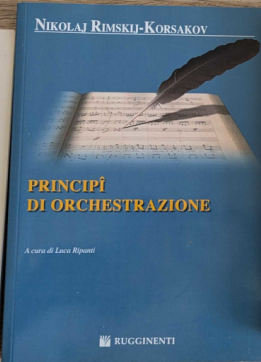
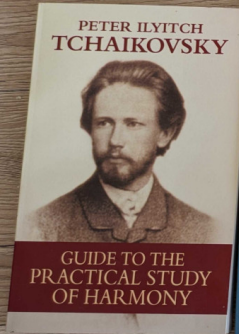
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Not a bad idea to do some homework



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Linux Midi Orchestration

Peter Schaffter

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

Trying to write a score



The screenshot shows the LilyPond software interface. The main window displays a musical score for Telemann's Psalm 117. The score is written in LilyPond notation, with a piano part and a vocal part. The vocal part includes lyrics in Dutch: "Lau-da - te Je-ho - vam, om-nes gen-tes! om-nes gentes! Lau-da - te Je-ho - vam om-nes gentes! om-nes gentes!". The interface includes a menu bar with options like Bestand, Bewerken, Beeld, Document, LilyPond, Bladzijgers, Hulpmiddelen, and Help. A toolbar with icons for various functions is located below the menu bar. On the left, there is a sidebar with a list of articulations and a section for "Versieringen" (ornaments). The main score editor shows a piano part with a treble clef and a vocal part with a soprano clef. The vocal part has lyrics in Dutch. The bottom status bar shows the file name "Hemel/wilbert/fymusic/telemann-psalm117-parts.ly" and the page number "Pagel: 239 Kol: 13".

Engraved by Wilbert Berendsen (<http://www.wilbertberendsen.nl/>)
Copyright © 2009 The Choral Public Domain Library (<http://www.cpdl.org/>)
This edition may be freely distributed, edited, performed or recorded.
The organ realisation and all tempo and dynamic indications are editorial.

<https://lilypond.org/>

A simpler WYSIWYG approach: MuseScore



The screenshot displays the MuseScore 3.10 interface. The main window shows a piano score with three systems of music. The first system is marked "Andante con moto" with a tempo of 120. The second system is marked "più mosso" and the third "tempo primo". The score includes various musical notations such as notes, rests, and dynamics like *mp*, *mf*, and *rit.*. The left sidebar contains a "Palettes" panel with a list of musical symbols and their properties. The right sidebar shows the "Inspector" panel, which is currently displaying the properties of a selected barline. The Inspector panel includes sections for "Element", "Segment", and "Barline", with various settings like "Visible", "Automatic placement", "Minimum distance", "Offset", "Stacking order", "Style", "Span to next staff", "Span from", "Span to", and "Span presets".

File Edit View Add Format Tools Plugins Help

100% Page View

Concert Pitch

Inspector

- Element
 - Visible
 - Automatic placement
 - Minimum distance: 0.00sp
 - Offset: X: 0.00sp Y: 0.00sp
 - Stacking order (Z): 1200
- Segment
 - Leading space: 0.00sp
- Barline
 - Style: Single barline
 - Span to next staff
 - Span from: 0
 - Span to: 0
 - Set as staff default
 - Span presets: Default Tick 1 Tick 2

Barline: Single barline; Measure: 1; Beat: 1; Staff: 1 (Piano)

Normal mode 1:01:000

<https://musescore.org/>

Can't we get some better sounds?



- As we mentioned, virtual orchestration relies on virtual instruments
 - MuseScore uses a decent SoundFont, but it's not very realistic
 - Rather than synthetic sounds, why not use samples/libraries?

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- As we mentioned, virtual orchestration relies on virtual instruments
 - MuseScore uses a decent SoundFont, but it's not very realistic
 - 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>

Virtual Playing Orchestra



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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 attack and articulations (SFZ syntax, CC, keyswitching)

A VPO template for Ardour



- Excellent template for Ardour DAW by Michael Willis
 - <https://github.com/michaelwillis/virtual-playing-orchestra-ardour-template>

A VPO template for Ardour



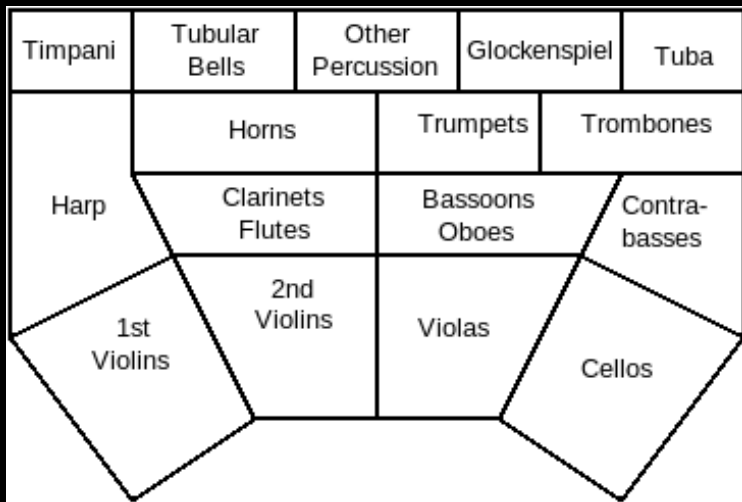
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- Pre-created MIDI tracks for many instruments (2 flutes, 2 oboes, ...)
 - **sfizz** LV2 used to assign VPO sounds to instruments
 - Different tracks for different string articulations
 - Panning of instruments to simulate stage presence
 - “DragonFly 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)

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!

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Adapting VPO's SFZ files for articulations



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 - e.g., tremolo = multiple notes on MuseScore, but custom sample in VPO
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- Modified VPO's SFZ to use custom MIDI CC (14) for switching
 - <https://github.com/lminiero/musescore-vpo-midi-actions/>
 - CC[14] = 0-19 (sustain), 20-39 (tremolo), 40-59 (normal), etc.

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 - CC[14] = 0-19 (sustain), 20-39 (tremolo), 40-59 (normal), etc.
- 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)



SoundCloud player interface for the track "Lost Horizon (symphonic poem)" by Lorenzo Miniero.

Track Information:

- Title: Lost Horizon (symphonic poem)
- Artist: Lorenzo Miniero
- Genre: # Classical
- Released: 4 years ago

Audio Player:

- Progress bar: 0:00 / 12:00
- Controls: Play, Stop, Previous, Next, Repeat, Shuffle

Description:

An attempt to write yet another classical symphonic poem, inspired by the "Lost Horizon" novel by James Hilton, one of my favourites. This work is dedicated to Lennie Moore (lenniemoore.com), one of the greatest influences in my music life. The whole score is available on MuseScore: musescore.com/lminiero/lost-horizon

It's musically inspired by the Outcast OST by Lennie Moore (the Ranzaar theme, in particular), the "7 years in Tibet" OST by John Williams, and late-romantic giants like Tchaikovsky (1st symphony, in this context) and Dimsky-Keresaku (Antar symphony). "Montuna" from Holo's Dispute has also been

Artist Profile:

- Artist: Lorenzo Miniero
- Followers: 41
- Following: 16

Support:

Show some love for your favourite artists. Follow this link to their own support page. [Learn more](#)

[Support Lorenzo Miniero](#)

IN PLAYLISTS:

- Lorenzo Miniero Classical

Player Controls:

- Progress bar: 0:00 / 12:00
- Volume: 100%
- Repeat: Off
- Shuffle: Off

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

“All I want for Christmas is Odin”



<https://video.lminiero.it/music/aiewfcio/>

Cleopatra (symphonic metal)



Lorenzo Miniero

Browse



Cleopatra (EP)

Lorenzo Miniero

[▶ Listen](#) [... About](#)

A 27 minutes long symphonic rock instrumental on Cleopatra, split in 9 tracks.

▶	01 I. Overture	5:24
▢	02 II. Cleopatra's Fanfare	3:21
▢	03 III. Antony and Cleopatra	2:40
▢	04 IV. The Power of Rome	3:25

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

Experimenting with BBC SO Discover



BBC Symphony Orchestra (GUI)

CPU 0% DISK 0% MEM 76.2 MB VOICES 0

MIDI CH: ANY TUNE PAN VOL 1

SPITFIRE AUDIO Strings: Violins 1

SO BBC Symphony Orchestra

VIOLAS

Adding a warmth and depth to the string section, these twelve violas are useful in a variety of ways.

LONG SPICCATO PIZZICATO TREMOLO

BBC SYMPHONY ORCHESTRA v1.7.0

This is an information panel. As you rollover widgets with your mouse, information related to their usage will show up here.

BBC Symphony Orchestra Discover



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 - But what's there does sound really good!

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 - ... as long as you use the old Spitfire Labs application
 - <https://linuxmusicians.com/viewtopic.php?p=176400>
- 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 → recording in Ardour

R U There? (progressive rock)



Lorenzo Miniero

Browse



R U There?
Lorenzo Miniero

[▶ Listen](#) [📄 Download](#) [⋮ About](#)

A progressive rock journey through the mind and its emotions. R u there?

[📄 Bandcamp](#) [📄 Mirlo](#)

▶	1. Remembrance	0:59
▶	2. Resolve	4:54
▶	3. Reverence	9:48
▶	4. Reluctance	

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

Next step: play with Muse Sounds?



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 - Initially a closed source application that required root access (not anymore)
- ... 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!



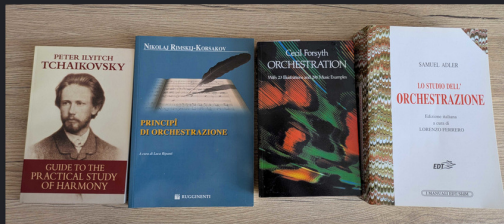
Lorenzo Miniero's blog

Home

About

How do you become an orchestra composer using FOSS?

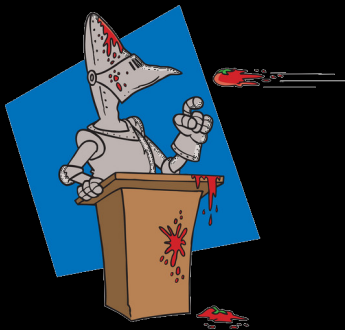
March 08, 2025




This was going to be the topic of one of the presentations I got accepted at [FOSDEM 2025](#). Unfortunately, a nasty flu got the best of me, so I had to cancel my attendance... As such, I decided to try and summarize the main points of the presentation I wanted to give in a more structured (and possibly too long?) post instead.

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

Thanks! Questions? Comments?



Contacts

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