

# How to play FLOSS keyboards like it's 1978

(and embarrass your kids)

# Me, myself and I

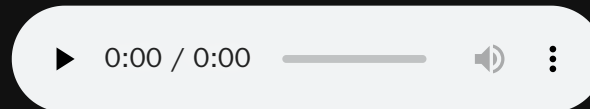
- Christopher Arndt
- aka "SpotlightKid" (online)
- aka "Spotlight Kyd" (music)

# Overview

- Example one: "Parta Eklipso"
- Synthesizer / Keyboard Timeline
- FLOSS instruments
- Case Studies
- Example two: "Leaving Tonite"
- Questions

# "Parta Eklipso"

Let's hear some music first!



# Why 1978?

- First Analog Poly Synths
- Analog and electro-mechanical instruments still widely used
- On the cusp of the digital revolution
- Great Music! 🕶️

# Why keyboards?

- Most electronic instruments have keyboards.
- Most virtual instruments are meant to be played via keyboard (because MIDI).
- Great variety of instrument types and technologies used

# Short history timeline of keyboards in Pop & Rock

Only instruments are listed, which either mark a very important technical development or found significant use in popular music.



The year listed marks general availability.  
Development might have started earlier.  
Important and/or early users are noted in  
parentheses.

# 1935

- Hammond Tonewheel Organ

# 1939

- **Hammond Novachord** - first commercial synthesizer, using valves.

# 1954

- **Chamberlin** - using tape recordings of instruments and rhythms (predecessor of the Mellotron, developed since 1949)
- **Wurlitzer Electronic Piano 100** (Sun Ra, Ray Charles, Joe Zawinul)

# 1963

- Mellotron (Moody Blues, Beatles, King Crimson, Genesis)

# 1965

- Rhodes Piano Mk I "Suitcase" (Chick Corea, Stevie Wonder et al.)
- Hohner Pianet N (The Zombies, Beatles, Genesis)

# 1967

- **Moog Modular** (Wendy Carlos, Keith Emerson (ELP))
- **Buchla** 200 series Electric Music Box
- **RMI Electra Piano** Model 100 (Beach Boys, Lovin' Spoonful, Deep Purple, Genesis)
- Korg Minipops 7 drum machine (Jean-Michel Jarre)

# 1968

- Wurlitzer Electronic Piano 200 (Carpenters, Supertramp)



# 1970

- Moog Minimoog - 1st mono synth with keys (non-modular)
- Arp 2500

# 1971

- EMS VCS 3 (Pink Floyd, Jean-Michel Jarre)

# 1972

- **Arp Odyssey** (Herbie Hancock, Jon Lord)
- **Arp Pro Soloist** - 1st preset monosynth (Tony Banks (Genesis))
- **Eminent 310 Unique** - home organ with 1st commercially available **string synthesizer** using divide-down oscillators

# 1974

- Oberheim SEM - synthesizer expansion module
- ARP / Solina String Ensemble

# 1975

- **Moog Polymoog** 203a - early polyphonic synth, using divide-down oscillators
- **Moog Taurus** - synth bass pedal (Mike Rutherford (Genesis))
- **Yamaha GX-1** "Dream Machine" - marketed as an electric organ but actually one of the 1st polyphonic synths (Stevie Wonder)
- Oberheim Two and Four Voice

# 1976

- Roland RS-202 Strings (Tony banks, Peter Bardens (Camel))
- Yamaha CP-70 - "portable" electric piano with strings and piezo pickups

# 1977

- **Arp Avatar** - one of the 1st commercial guitar controlled synths (Pete Townshend, Mike Rutherford, Steve Howe)
- **Yamaha CS-80** - 1st polyphonic synth with poly aftertouch (Vangelis, Toto)
- Oberheim Eight Voice
- **Korg PS-3300** - 48-voice analog semi-modular synthesizer (Keith Emerson, Jean-Michel Jarre)
- Hohner Pianet T

# 1978

- Sequential Circuits Prophet 5 - 1st polphonic synth with microprocessor control and patch storage (everybody and their dog)
- PPG Wavecomputer 360 - 1st wavetable synth
- New England Digital Synclavier - 1st commercial FM synth
- Roland CR-78 - analog *programmable* and preset rythms drum machine



# Takeaway points

- Synthesizers for musicians since the late sixties
- Polyphonic synths since mid/late seventies
- Only basic drum machines, arpeggiators and sequencers
- Electro-mechanical keyboards still in common use in the late seventies
- Some instruments survive until today, some only available as vintage gear now

# Sources

- <https://www.synthevolution.net/articles/2020/11/24/timeline>
- <https://hub.yamaha.com/keyboards/synthesizers/history-of-synthesizer-part-1/>
- [https://www.sequencer.de/synth/index.php/Synthesizer\\_H](https://www.sequencer.de/synth/index.php/Synthesizer_History)
- [https://vintagesynthpads.com/ocart/The-History-of-Synthe  
Presets.html](https://vintagesynthpads.com/ocart/The-History-of-Synthesizer-Presets.html)
- Wikipedia

# FLOSS instruments

The state of FLOSS virtual instruments today:

- Lots of new plugins every week
- Many synthesizers
- Good software support for SFZ since a few years
- Growing pool of SFZ sample libraries
- Lack of presets, instruments and samples tuned for live playing
- Many sample libraries have non-free licenses 😞

# Instruments

- (Electric) Pianos
- Organs
- Synthesizers
- String machines
- Analog Samplers

# Piano

Use:

- Salamander Grand Piano (SFZ, via [FreePats](#))
- YDP Grand Piano (SF2, via [FreePats](#))
- Upright Piano KW (SFZ, via [FreePats](#))
- (various [Pianobook](#) samples, via [SFZ Mappings](#), non-FLOSS)

# Electric Pianos

# Yamaha CP-70/80

Use:

- Sullivan "CP80" (SFZ)
- Pianobook "David's CP70" (SFZ)

# (Fender) Rhodes Piano

Use:

- Pianobook "mRhodes" (SFZ, some editing needed)
- MDA E-Piano (LV2, quick and dirty)
- Emulation with FM synthesis



# Wurlitzer Electronic Piano

Use:

- Sullivan "Wurlitzer 2003W" (SFZ)
- AV Linux Wurly (SFZ)
- Pianobook
- Emulation with FM synthesis

# Hohner Pianet N/T and Electra Piano

Use:

- Pianobook "Little Black EP" or "Ritvars' Hohner Pianet T" (SFZ)
- Sullivan "Pianet T" (SFZ)

# Hohner Clavinet

Use:

- AV Linux Clavinet
- Emulation with FM synthesis

# Organs

# Hammond (Tonewheel)

- Hammond C3/B3, M100/L100 etc.

Use:

- `setBfree` (LV2, stand-alone)

# Combo (Transistor) Organs

- Vox Continental
- Farfisa
- Yamaha YC-10/20/25/45

Use:

- Calf Organ
- Foo-YC20
- Emulation with FM synthesis

# Synthesizers

# Analog Monosynths

- Moog Modular
- Moog Minimoog
- Arp 2600 / Odyssey
- Arp Pro Soloist

Use:

- Surge XT
- TAL Noisemaker
- Calf Monosynth
- Cardinal



# Analog Polysynths

- Yamaha CS-80
- Sequential Circuits Prophet 5
- Oberheim Two/Four Voice (and OB-X)

Use:

- OB-Xd
- Surge XT
- TAL Noisemaker

# **RMI Electra Piano**

## **WANTED!**

# String Machines

- Solina / ARP String Ensemble / Eminent 310  
Unique
- Roland RS-101/202/505/09
- Roland Vocoder VP-330
- Logan String Melody
- Yamaha SK-60/60
- ELKA Rhapsody
- etc.

Use:

- string-machine
- Any subtractive poly synth with an ensemble chorus
- Samples (many not freely redistributable)

# Analog Samplers

# Mellotron

Use:

- Tajiiguy Samples (SF2, SFZ)

# Optigan / Orchestron

## WANTED!

# Software Catalog

Listed software projects are only a hand-picked selection, which have *mostly* proven to be reliable *and* usable in the experience of the author.



# Sample Players

# SFZ

- sfizz (SFZ)

# SF2

- **Ardour ACE Fluidsynth** (bundled with Ardour) or **DIE plugins Fluidsynth**
- **Calf Fluidsynth**
- **Fluajho**

# Misc

- MDA E-Piano

# Organs (non pipe)

- SetBFree
- Calf Organ
- Foo-YC20

# Synthesizers

- TAL NoiseMaker(via DISTRHO Ports)
- Surge XT
- OB-Xd (via DISTRHO Ports)

The current version of **NoiseMaker** from **TAL** and of **OB-Xd** from **discodsp.com** still support Linux but are not FLOSS anymore.

The older versions in **DISTRHO ports** are FLOSS and still work well.

# Modular

- Cardinal
- Bespoke



# FM

- Dexed (via DISTRHO Ports)
- Oxe FM Synth
- OctaSine

# String machines

- string-machine
- Crumar Performer (Linux native but not FLOSS)

# Drum Synthesizers

- Geonkick
- OT Simian

# Effects

- Stone Phaser
- Calf MultiChorus, Phaser, Rotary Speaker, Tape Simulator, Vintage Delay
- YK Chorus
- CHOW Tape Model
- x42 Whirl
- Ensemble Chorus
- TAL Vocoder (via DISTRHO Ports)

The current version of **TAL Vocoder** from **TAL** still supports Linux but is not FLOSS anymore.

The older version in **DISTRHO Ports** is FLOSS and still works well.

# Plugin Hosts and Session Managers

- Ardour
- Carla
- RaySession
- Agordejo
- Bespoke

# Sample sources

# Lists and collections

- [List of Sampled Instrument Libraries](#) by Nils Hilbricht
- [SFZ Instruments](#) website
- [SFZ Mappings](#) GitHub repository
- [FreePats](#) Project website
- [AV Linux](#) SFZ instruments FTP server



- Plogue sforzando free instruments website (various licences)
- Free Sounds for ARIA Engine Vol. 1 (contains e.g. *PatchArena Siel Orchestra* samples) (non-free!)
- Pianobook website (not freely redistributable, email registration required)

# Specific instruments

- Sullivan Electric Pianos: CP80, Planet T and Wurlitzer 203W (SFZ conversions)
- Tajiiguy Leisureland Mellotron
- Optigan® / Orchestron / Talentmaker: The Optical Organ Toolkit (non-free!)
- Emdot Roland RS-202 Sample Set (direct download link)
- Per Kristian Risvik Eminent 310 Unique samples (no license!)

# Case studies

"Parta Eklispo"

*old-school space electronica*

"Leaving Tonite"

*electro-funk / disco*

# A look at the Ardour sessions

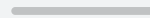
Git repositories with Ardour project archives:

- Parta Eklipso
- Leaving Tonite

# "Leaving Tonite"

Let's boogie!

▶ 0:00 / 0:00



# Thanks for listening!

Need help with:

- Using synthesizers and sound programming,
- composing, recording and production
- ... or software development?

[chris@chrisarndt.de](mailto:chris@chrisarndt.de)

Find my music and software at:

- <https://soundcloud.com/spotlight-kyd>
- <https://spotlight-kyd.bandcamp.com>
- <https://github.com/SpotlightKid>

# The End

Questions?

Video Player



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  - sound programming
  - composing, recording and production
  - ... or software development?

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