How to play FLOSS keyboards like it's 1978

(and embarrass your kids)
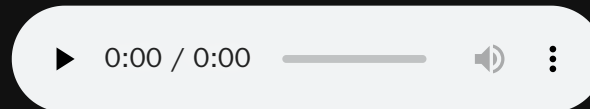
Me, myself and I

- 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/timeli
- https://hub.yamaha.com/keyboards/synthesizers/history-o synthesizer-part-1/
- https://www.sequencer.de/synth/index.php/Synthesizer_H
- https://vintagesynthpads.com/ocart/The-History-of-Synthe 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, Pianet 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
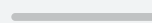
Git repositories with Ardour project archives:

- 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, rcording and production
- ... or software development?

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