

The LAC 2014 Percussion Combo

Frank Neumann, April 10th, 2015

Before we start -
A Word Of Warning

This talk will be very embarrassing
at the end for at least one person
in this room.

If you want to leave, do so **NOW**.

So, you think this will be a
highly scientific presentation?

$$\omega = \frac{2\pi}{T} \quad f = \frac{1}{T}$$

$$\begin{aligned} \mathbf{v} &= \mathbf{v}_0 + \mathbf{a}t \\ \mathbf{x} &= \mathbf{x}_0 + \mathbf{v}_0 t + \mathbf{a}t^2/2 \\ v^2 - v_0^2 &= 2\mathbf{a}(\mathbf{x} - \mathbf{x}_0) \\ \bar{\mathbf{v}} &= \frac{\mathbf{v}_f + \mathbf{v}_i}{2} \quad \Delta\mathbf{x} = \bar{\mathbf{v}} \Delta t \end{aligned}$$

$$\begin{aligned} \mathbf{x} &\rightarrow x, y & \mathbf{x}_0 &\rightarrow x_0, y_0 \\ \mathbf{v} &\rightarrow v_x, v_y & \mathbf{v}_0 &\rightarrow v_{0x}, v_{0y} \\ \mathbf{a} &\rightarrow a_x, a_y \end{aligned}$$

$$v = \sqrt{\frac{T}{\rho}}$$

$$\begin{aligned} v &= \omega r \\ a &= \alpha r \\ I &= \sum_i m_i r_i^2 \quad \theta = \theta_0 + \omega_0 t + \frac{1}{2} \alpha t^2 \\ \omega^2 - \omega_0^2 &= 2\alpha(\theta - \theta_0) \end{aligned}$$

$$\vec{F}_{\text{tot}} = m \vec{a}$$

$$a = \frac{v^2}{R}$$

$$v = \lambda f$$

$$\begin{aligned} L &= r_{\perp} p = m v r_{\perp} & \tau &= r_{\perp} F = r F_{\perp} \\ L &= I \omega & \tau &= \frac{\Delta L}{\Delta t} & \tau &= I \alpha \\ \frac{1}{2} I \omega^2 & & \sum_i \vec{F}_i &= 0 & \sum_i \vec{\tau}_i &= 0 \\ & & & & & > 0 \end{aligned}$$



A diagram of a sinusoidal wave. A horizontal dashed line represents the equilibrium position. The wave oscillates above and below this line. A full wavelength λ is indicated by a double-headed arrow from one crest to the next. A half-wavelength $\lambda/2$ is indicated by a double-headed arrow from one crest to the next trough. A quarter-wavelength $\lambda/4$ is indicated by a double-headed arrow from the equilibrium line to a crest.

$$\begin{aligned} W &= F d_{\parallel} = F_{\parallel} d \\ W_{\text{tot}} &= \Delta(\text{KE}) \\ \Delta U &= -W_{\text{if}} \\ \frac{1}{2} kx^2 \quad \omega &= \sqrt{\frac{k}{m}} \\ p &= mv \end{aligned}$$

$$\begin{aligned} E &= K + U & \Delta Q &= (\text{quant.}) C_{\text{cond.}} \Delta T \\ E_i &= E_f & \Delta Q_{\text{into}} &= \Delta W_{\text{by}} + \Delta E \\ \frac{1}{2}mv^2 & & \frac{RT}{2} \Big|_{\text{deg. freedom}} & C_p = C_v + R \\ x &= A \cos(\omega t) = \{\text{or}\} A \sin(\omega t) \\ v &= -A\omega \sin(\omega t) = \{\text{or}\} A\omega \cos(\omega t) \\ a &= -A\omega^2 \cos(\omega t) = \{\text{or}\} -A\omega^2 \sin(\omega t) \end{aligned}$$

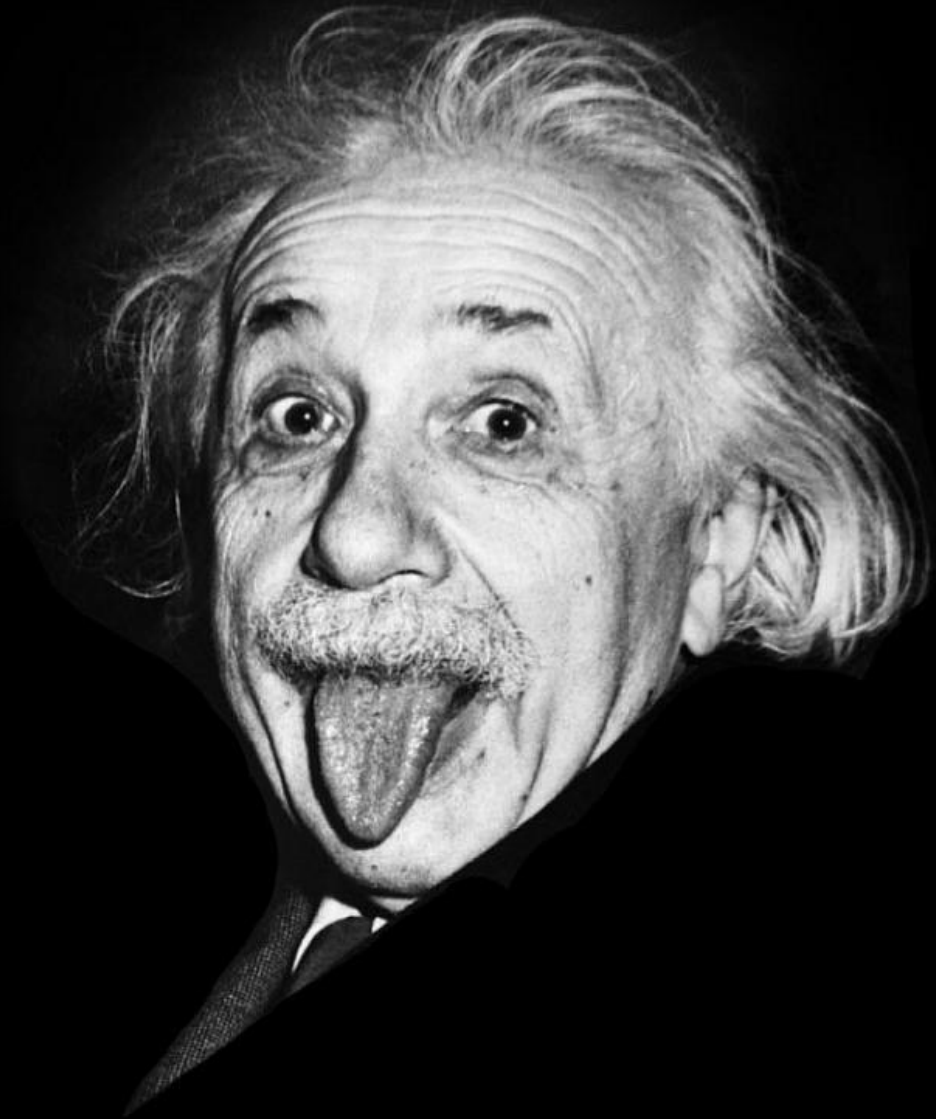
$$\Delta Q = 1 \Delta(\text{quant.}) \quad PV = nRT$$

$$e = \frac{\Delta W}{\Delta Q} \quad e = 1 - \frac{T_L}{T_H} \quad P = \frac{F}{A}$$

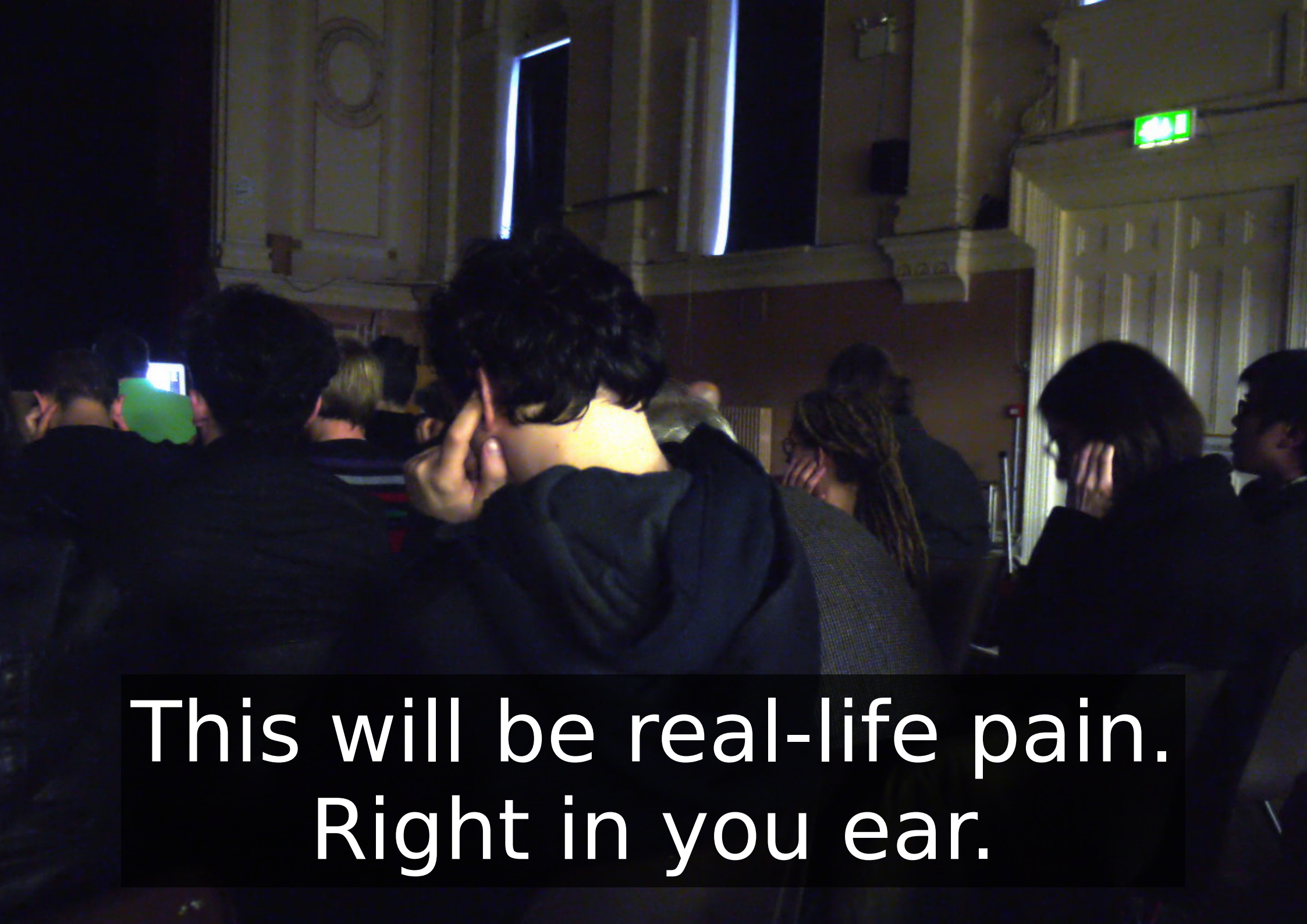
$$M = \rho V \quad P_1 = P_2$$

$$\Delta P = \rho g \Delta h$$

Something like this perhaps?



Baaah!



This will be real-life pain.
Right in you ear.

20_14_?

Warp back in time, to LAC
in Karlsruhe, May 2014.



3 days of lectures, music, fun

..followed by an excursion to the
Museum of mechanical music
instruments in Bruchsal (nearby).

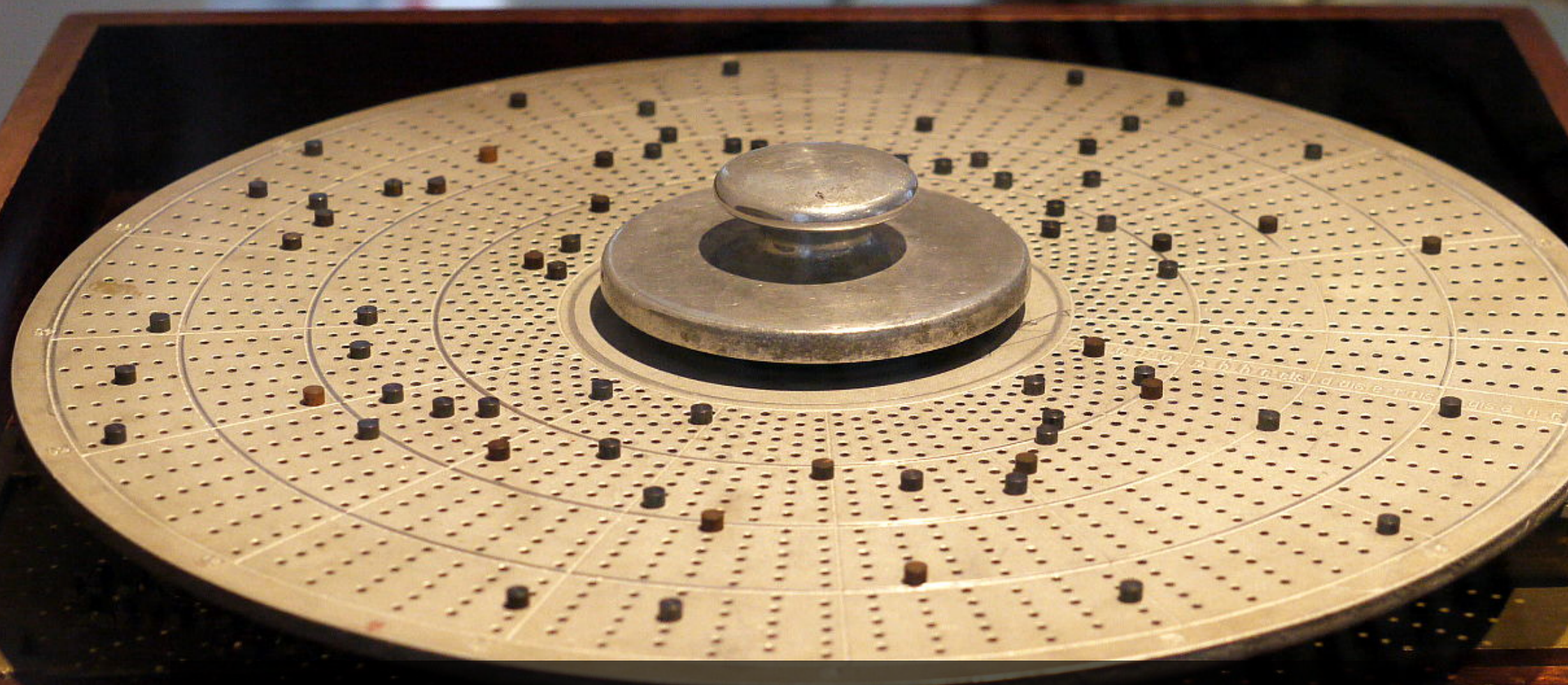
<http://www.dmm-bruchsal.de/>



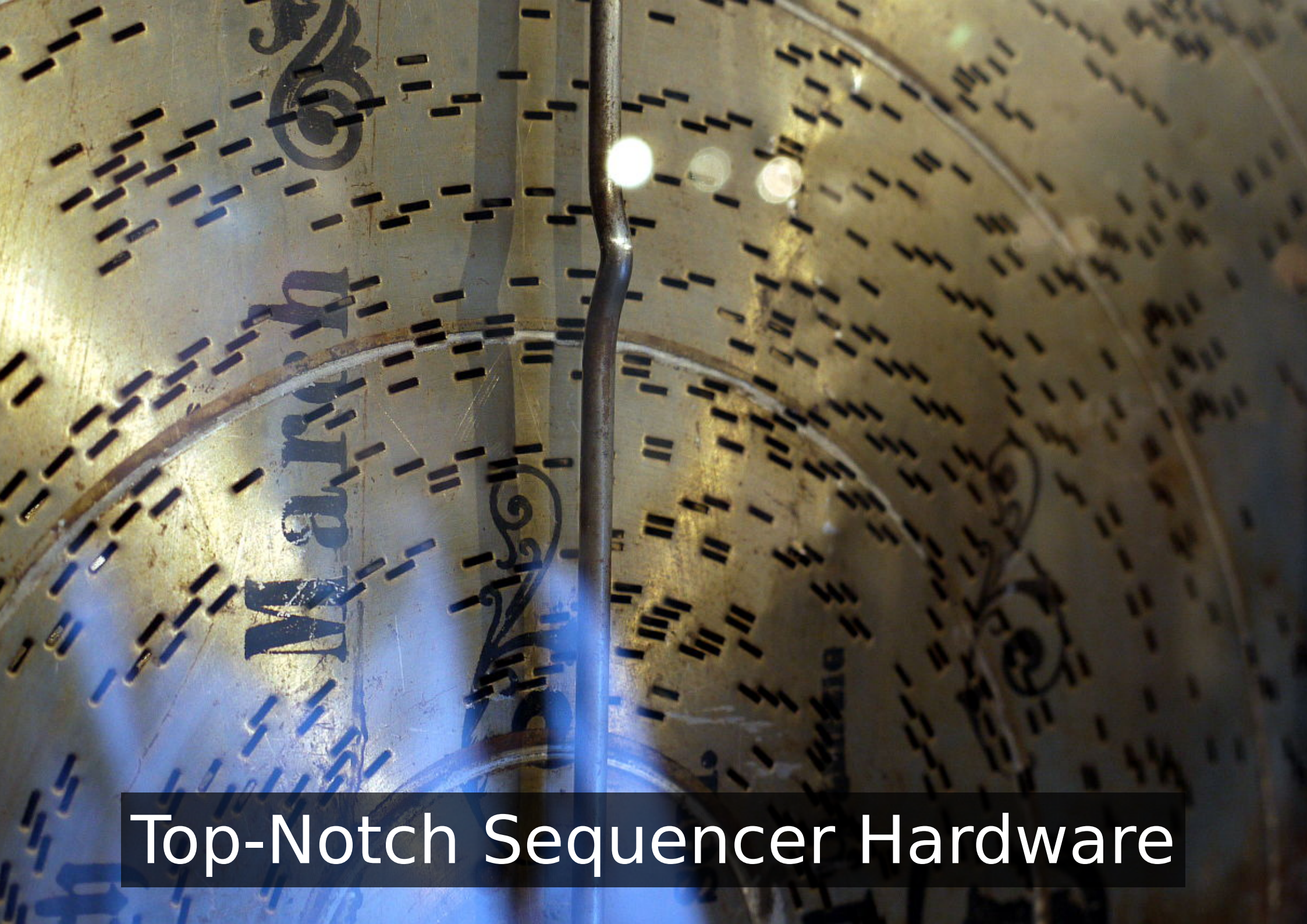
Nice weather.

A photograph of a punched tape, a type of early computer storage. The tape is yellowish and has numerous small holes punched into it in a grid-like pattern. It is held in place by a red, curved metal frame on the left and a white metal frame on the right. The white frame has three circular holes. A red cable is visible on the left side. At the bottom, there is a dark grey banner with white text.

Self-explanatory code.



Extremely Haptic UIs.



Top-Notch Sequencer Hardware

Nils Gey even did live-coding
on one of them.



After the guided tour - some spare time.

- Enjoy the sun
- Be **creative**



Part of my Percussion Posse.




Recording with my trusty Zoom H4n portable audio recorder



Marc Groenewegen kickin' da Boots
until it hurts.



Pjotr Lasschuit, harassing an innocent banana peel.




Me, faking hihats with tiny pebbles,
recorded long after LAC2014.
(but the pebbles are authentic
material from Bruchsal)



Nils Gey, clobbering his knee badly with a plastic bottle.




Bernard Tressol, double-snapping his fingers like no other can do.

A close-up photograph of a person sitting on a grassy area, wearing a grey and white checkered shirt and dark trousers. They are holding a black jacket with both hands, and a small rubber band is stretched across the jacket's zipper area. The person's hands are positioned to twang the rubber band. In the background, a paved area and a building with red and yellow walls are visible.

Michael Seeber, twanging a rubber band on his jacket



???, clapping his hands carefully.
Who is this? Please help me!




Again Marc Groenewegen, doing nasty stuff with both hands.



Marie-Kristin Meier, torturing an exhibition ticket with a locker key.

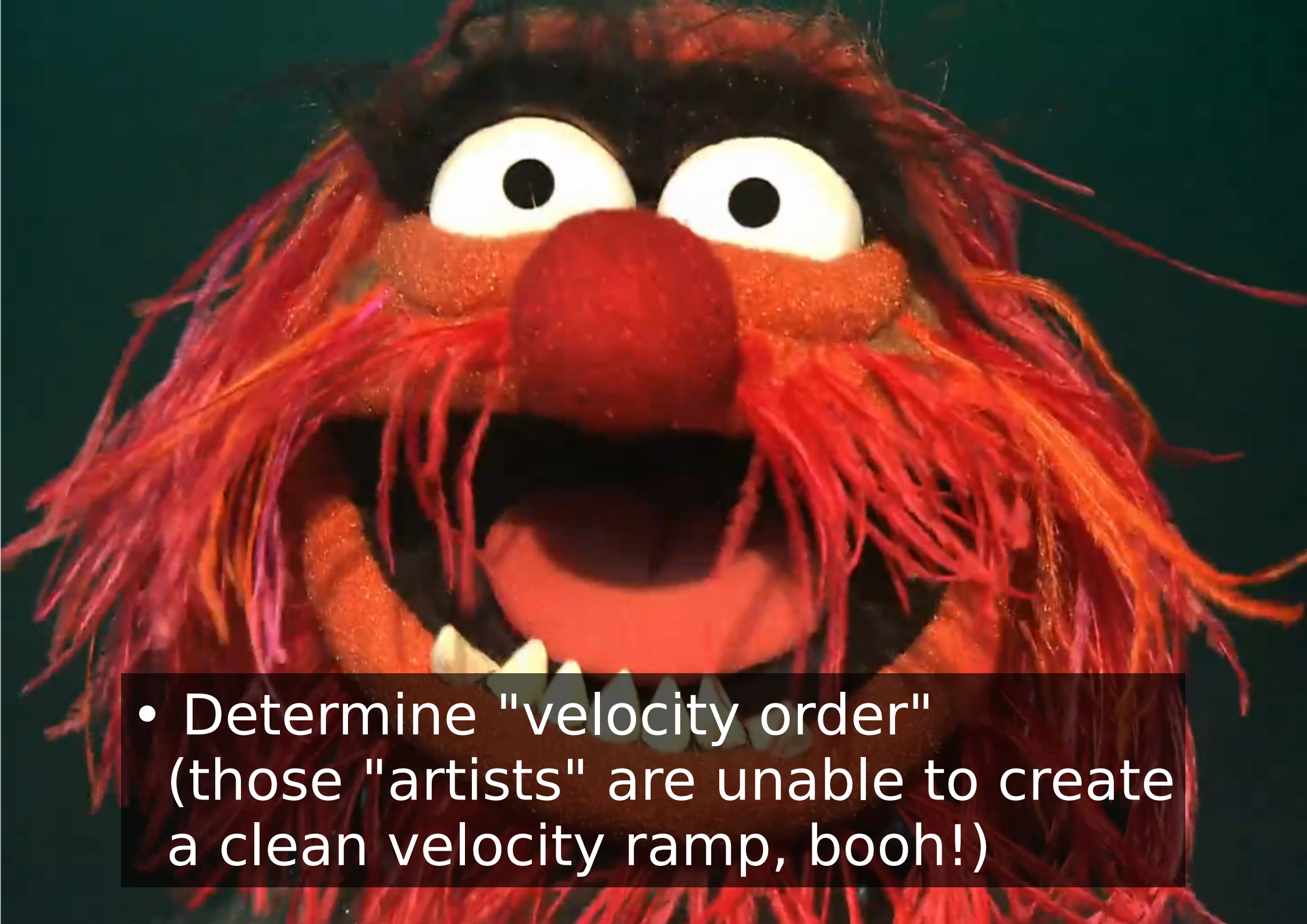
A close-up photograph of a person's hands opening a zipper on a black, textured camera bag. The bag is attached to a black jacket with a visible "THE NORTH FACE" logo on the sleeve. The person is wearing a gold ring on their finger. The background shows green foliage and a gravel path.

Fernando Lopez-Lezcano, exercising his camera pocket's zipper.

A pair of orange-handled Fiskars scissors is shown against a white background. A semi-transparent dark gray rectangular box is overlaid on the scissors, containing white text. The text lists postprocessing tasks: 'Postprocessing (all manual):' followed by a bulleted list: '• Isolating samples', '• Trimming', '• Short Fade ins/outs', '• Amplify/Normalize "al gusto"', and '• and also..'. The scissors have 'FISKARS' and 'STAINLESS FINLAND' printed on the blades.

Postprocessing (all manual):

- Isolating samples
- Trimming
- Short Fade ins/outs
- Amplify/Normalize "al gusto"
- and also..



- Determine "velocity order" (those "artists" are unable to create a clean velocity ramp, booh!)

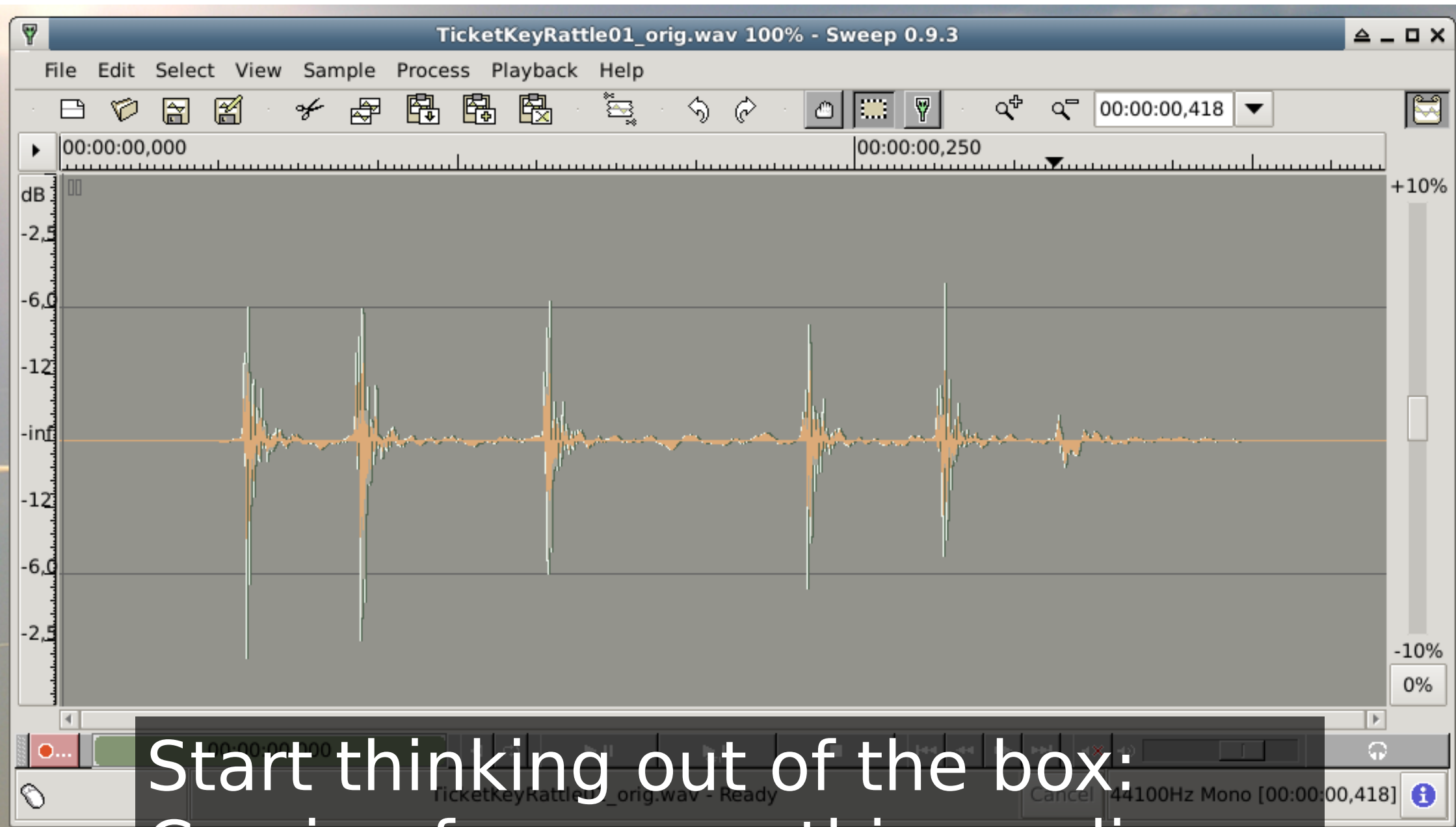


Sweep is sooo nice - anyone
want to maintain it? Please?

Going from stereo to mono samples:

```
mkdir mono; for i in *.wav; do  
sox $i -c 1 mono/$i; done
```

Demo: Importing into Hydrogen



Start thinking out of the box:
Coming from something ordinary..



Available **RealSoonNow** at linuxaudio.de:

- 11 different instruments
- Total of 136 individual samples
- Mono and stereo WAVs available
- .h2drumkit file for Hydrogen included
- Volunteers for other formats?
 - .sfz?
 - DrumGizmo?
 - insert your favourite sampler app here
- Thanks to the Artists!

Now, about the embarrassing part.

The demo song.

A man with a balding head is sitting in a light-colored leather armchair. He is wearing a bright red sweater over a dark shirt. He has his right hand pressed against his face, covering his eyes and forehead, suggesting a state of distress, frustration, or embarrassment. The background consists of a light-colored wall with arched architectural details.

The demo song.

BIG kudos to the authors of:

- JACK
- Qtractor (happy 10 year anniversary, Rui!)
- Hydrogen
- Sweep, mhwaveedit
- CALF Studio Gear
- setBFree
- zita-at1
- and perhaps countless more I forgot.

Fin

(Congrats - if you can read
this, you survived!)