

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?

$$\Delta \mathbf{x} = \mathbf{x}_f - \mathbf{x}_i$$

$$\Delta \mathbf{v} = \mathbf{v}_f - \mathbf{v}_i$$

$$\bar{\mathbf{v}} = \frac{\Delta \mathbf{r}}{\Delta t}$$

$$\bar{\mathbf{a}} = \frac{\Delta \mathbf{v}}{\Delta t}$$

$$v = |\mathbf{v}| = \sqrt{v_x^2 + v_y^2}$$

$$\theta = \cos^{-1}\left(\frac{v_x}{v}\right)$$

$$\theta = \sin^{-1}\left(\frac{v_y}{v}\right)$$

$$v_x = v \cos(\theta)$$

$$v_y = v \sin(\theta)$$

$$\mathbf{v} = \mathbf{v}_0 + \mathbf{a}t$$

$$\mathbf{x} = \mathbf{x}_0 + \mathbf{v}_0 t + \frac{1}{2} \mathbf{a} t^2$$

$$v^2 - v_0^2 = 2 \mathbf{a} \cdot (\mathbf{x} - \mathbf{x}_0)$$

$$\bar{\mathbf{v}} = \frac{\mathbf{v}_f + \mathbf{v}_i}{2}$$

$$\Delta \mathbf{x} = \bar{\mathbf{v}} \Delta t$$

$$\mathbf{x} \rightarrow x, y \quad \mathbf{x}_0 \rightarrow x_0, y_0$$

$$\mathbf{v} \rightarrow v_x, v_y \quad \mathbf{v}_0 \rightarrow v_{0x}, v_{0y}$$

$$\mathbf{a} \rightarrow a_x, a_y$$

$$\mu N$$

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

$$v = \lambda f$$

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

$$\mathbf{v} = \omega \mathbf{r}$$

$$\mathbf{a} = \alpha \mathbf{r}$$

$$x = r\theta$$

$$\omega = 2\pi f$$

$$f = \frac{1}{T}$$

$$\omega = \omega_0 + \alpha t$$

$$\theta = \theta_0 + \omega_0 t + \frac{1}{2} \alpha t^2$$

$$\omega^2 - \omega_0^2 = 2\alpha(\theta - \theta_0)$$

$$I = \sum_i m_i r_i^2$$

$$\tau = r_{\perp} F = r F_{\perp}$$

$$\tau = I \alpha$$

$$L = \mathbf{r}_{\perp} \mathbf{p} = m \mathbf{v} r_{\perp}$$

$$L = I \omega$$

$$\frac{1}{2} I \omega^2$$

$$\sum_i \bar{\mathbf{F}}_i = 0$$

$$\sum_i \bar{\boldsymbol{\tau}}_i = 0$$

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

$$E = K + U$$

$$E_i = E_f$$

$$\frac{1}{2} m v^2$$

$$\Delta Q = (\text{quant.}) C_{\text{const.}} \Delta T$$

$$\Delta Q_{\text{into}} = \Delta W_{\text{by}} + \Delta E$$

$$C_p = C_v + R$$

$$\Delta S \geq 0$$

$$\Delta Q = l \Delta(\text{quant.})$$

$$PV = nRT$$

$$e = \frac{\Delta W}{\Delta Q}$$

$$e = 1 - \frac{T_L}{T_H}$$

$$P = \frac{F}{A}$$

$$M = \rho V$$

$$P_1 = P_2$$

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

$$B = \rho_{\text{liq}} V_{\text{disp}} g$$

$$v_1 = A_2 v_2$$

$$P + \frac{1}{2} \rho v^2 = \text{const.}$$

$$W = F d_{\parallel} = F_{\parallel} d$$

$$W_{\text{tot}} = \Delta(\text{KE})$$

$$\Delta U = -W_{\text{if}}$$

$$\frac{1}{2} k x^2$$

$$\omega = \sqrt{\frac{k}{m}}$$

$$p = m v$$

$$\bar{\mathbf{p}}_{\text{int}} = \bar{\mathbf{p}}_{\text{ext}}$$

$$\left(\sum_j m_j \bar{\mathbf{v}}_j \right) = \left(\sum_j m_j \bar{\mathbf{v}}_j \right)$$

$$x = A \cos(\omega t) \text{ (or) } A \sin(\omega t)$$

$$v = -A \omega \sin(\omega t) \text{ (or) } A \omega \cos(\omega t)$$

$$a = -A \omega^2 \cos(\omega t) \text{ (or) } -A \omega^2 \sin(\omega t)$$

$$\frac{GM_c}{r^2} = g R_c$$

$$\frac{GMm}{r^2}$$

$$\frac{GMm}{r^2}$$

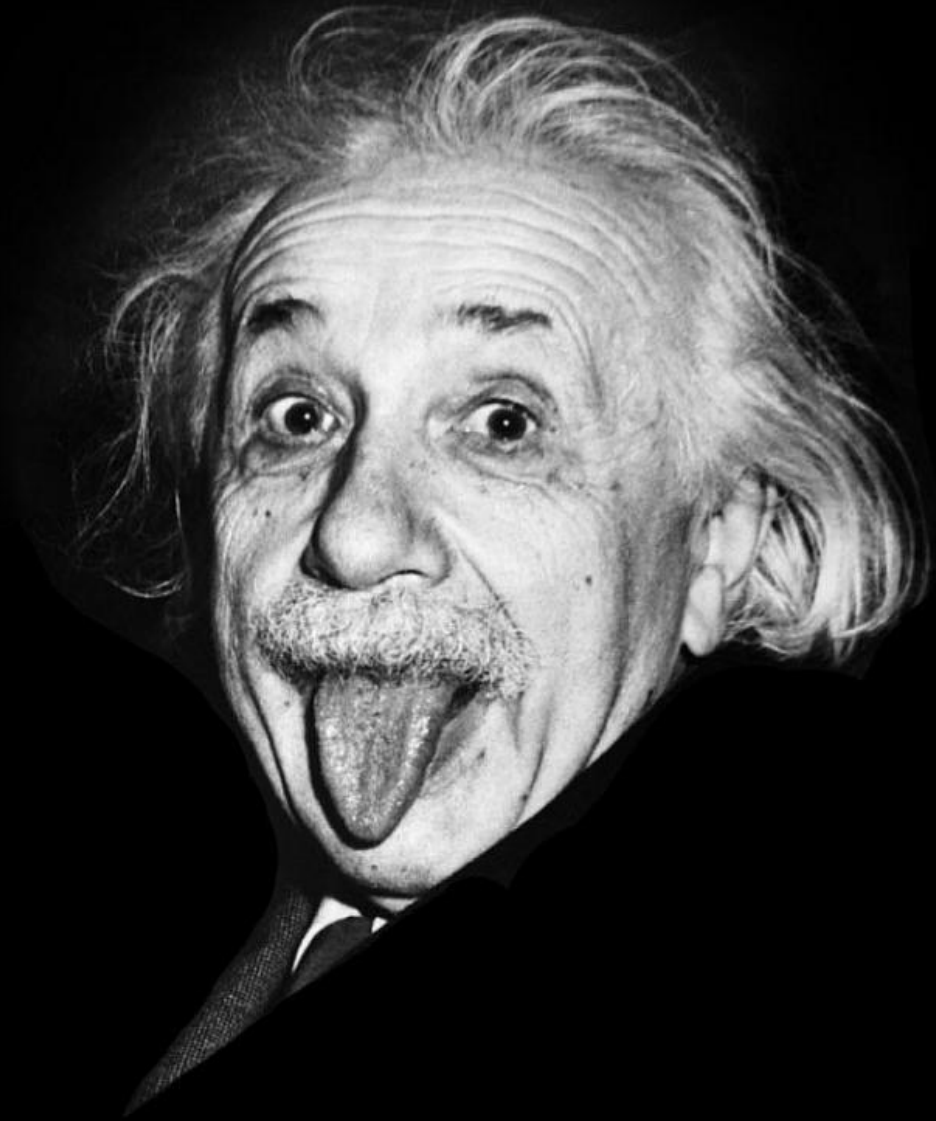
$$R_c = 6.37(10)^6 \text{ m}$$

$$v_c = 3.7(10)^2 \text{ m/s}$$

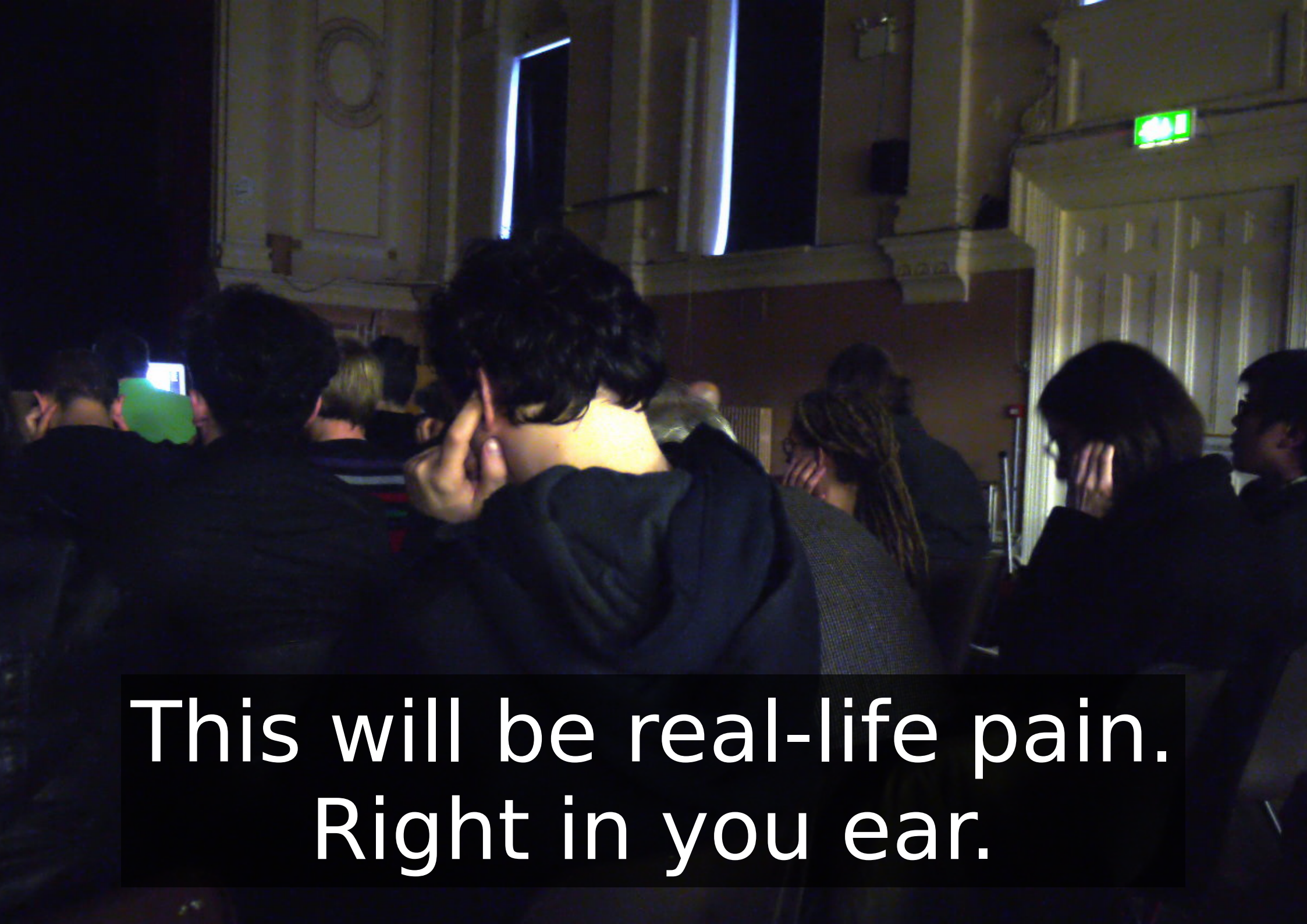
$$g = 9.8 \text{ m/s}^2$$

$$2\pi r$$

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).

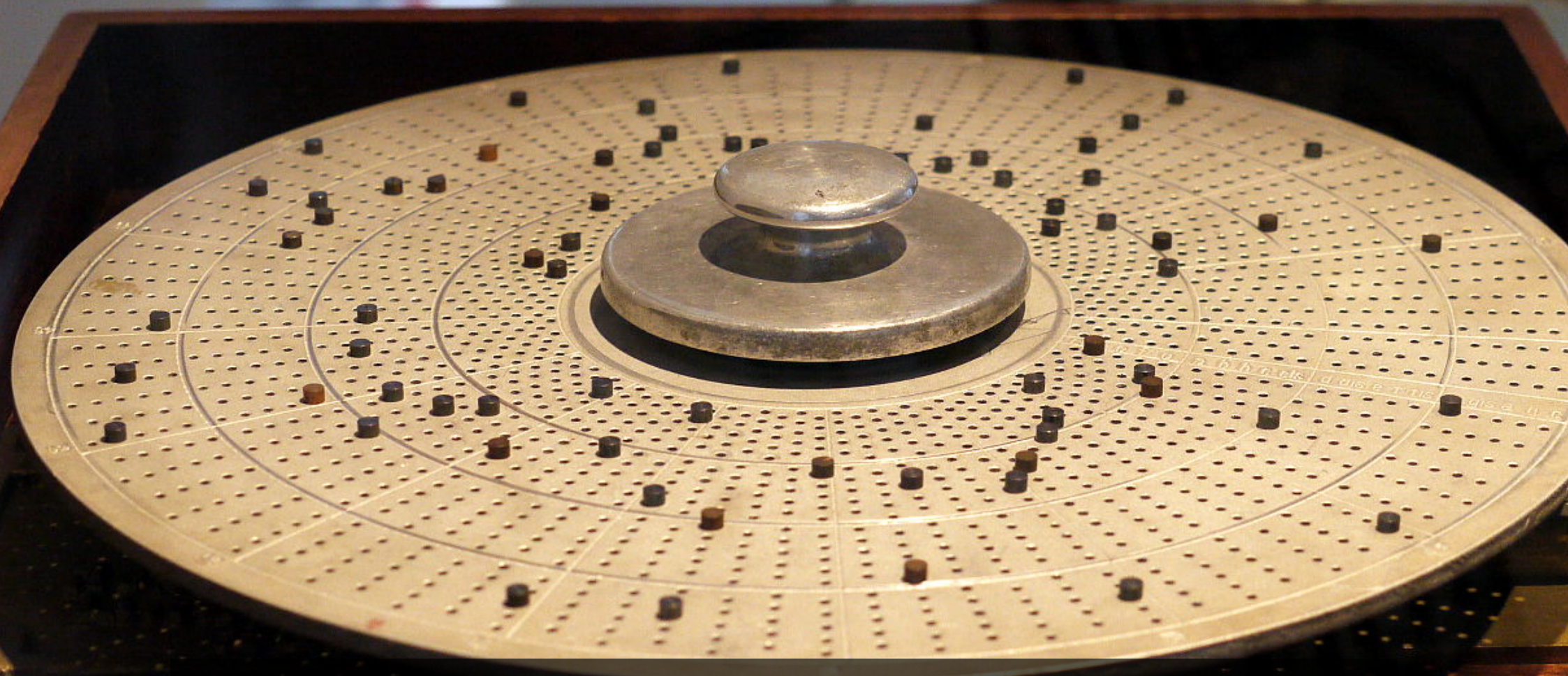
<http://www.dmm-bruchsal.de/>



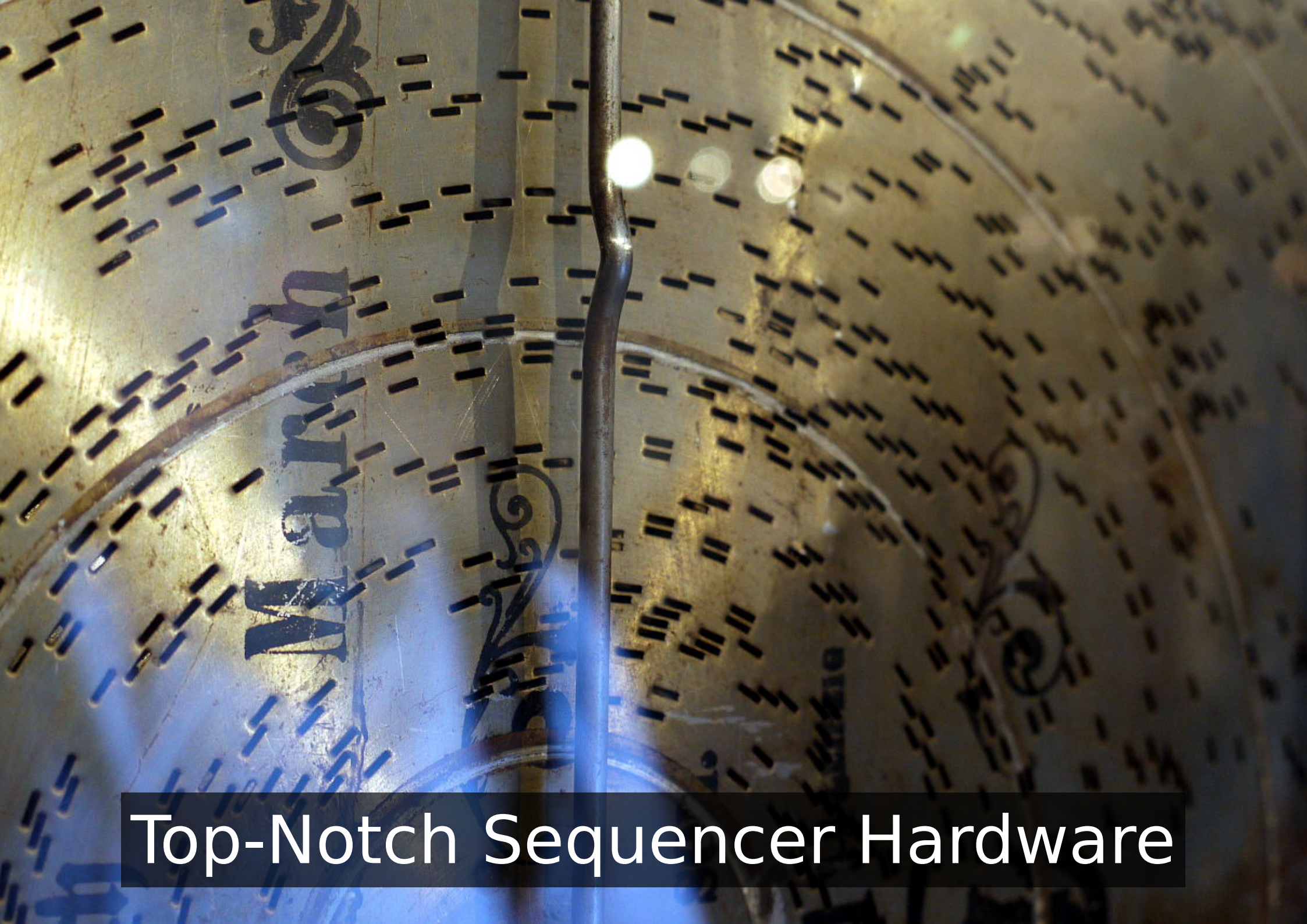
Nice weather.



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 between their fingers, attached to the jacket's fabric. The background shows a paved area and a building with red and yellow walls. A black bag is visible on the ground to the right.

Michael Seeber, twanging a rubber band on his jacket



Stefano Pedrinazzi, clapping his hands carefully.




Again Marc Groenewegen, doing nasty stuff with both hands.



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

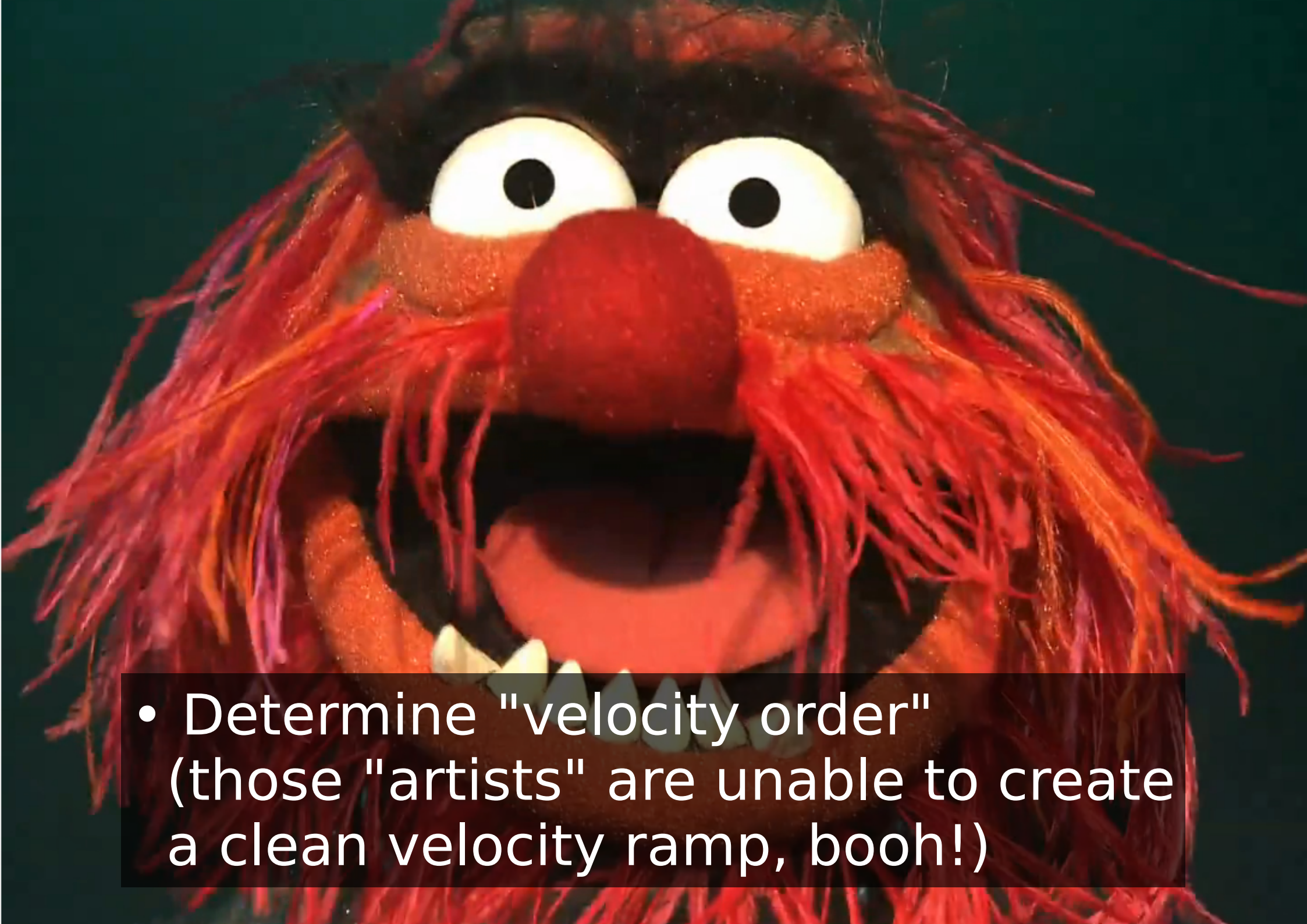
A close-up photograph of a person's hands opening a zipper on a black, textured bag. The person is wearing a black North Face jacket, with the brand name visible on the sleeve. The bag has a camera pocket with a zipper. The background shows green foliage and a gravel path.

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 scissors have orange plastic handles and silver metal blades. The brand name 'FISKARS' and 'STAINLESS FINLAND' are visible on one of 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!)

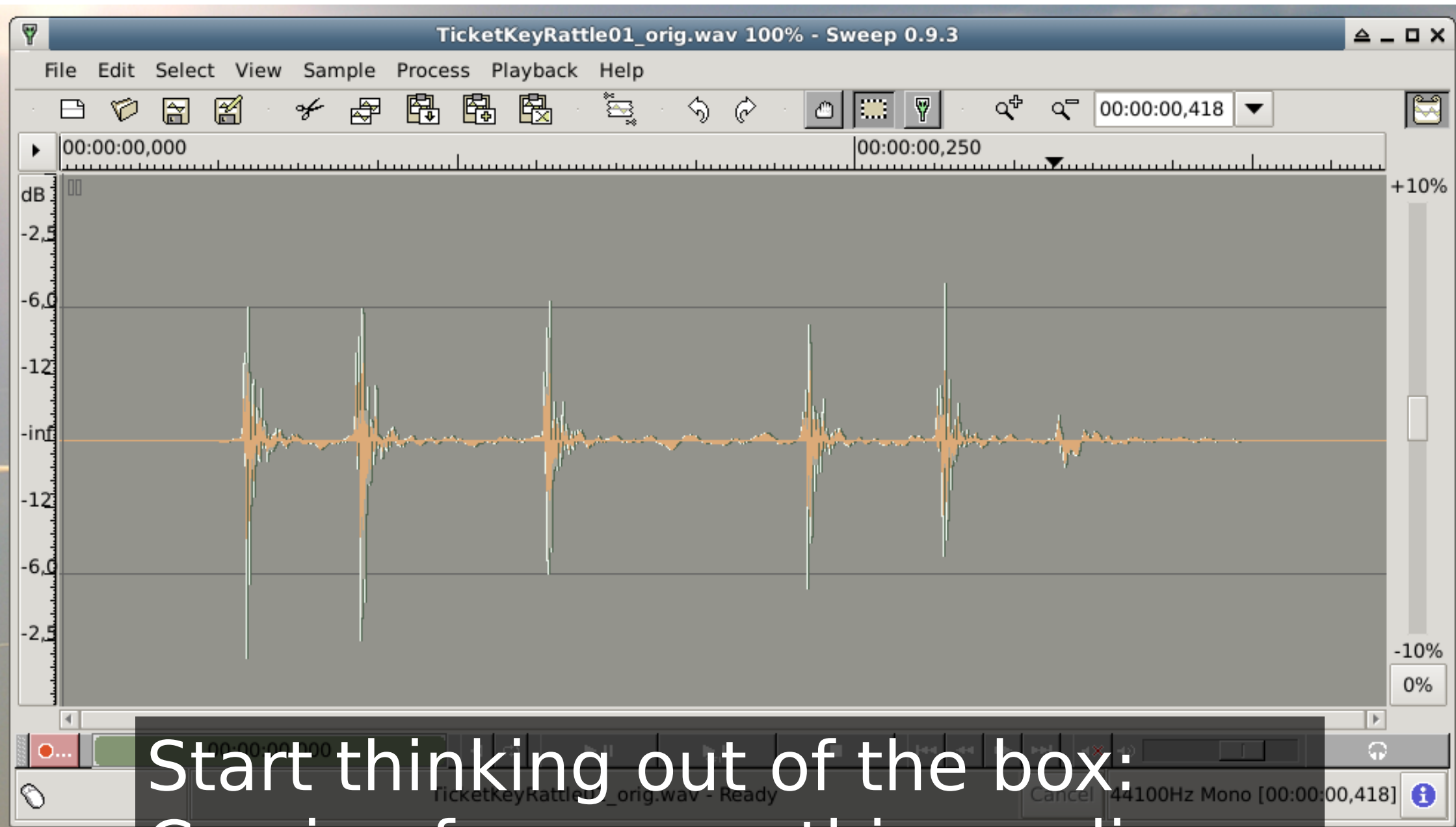


Sweep is sooo nice - anyone
want to maintain it? Please?

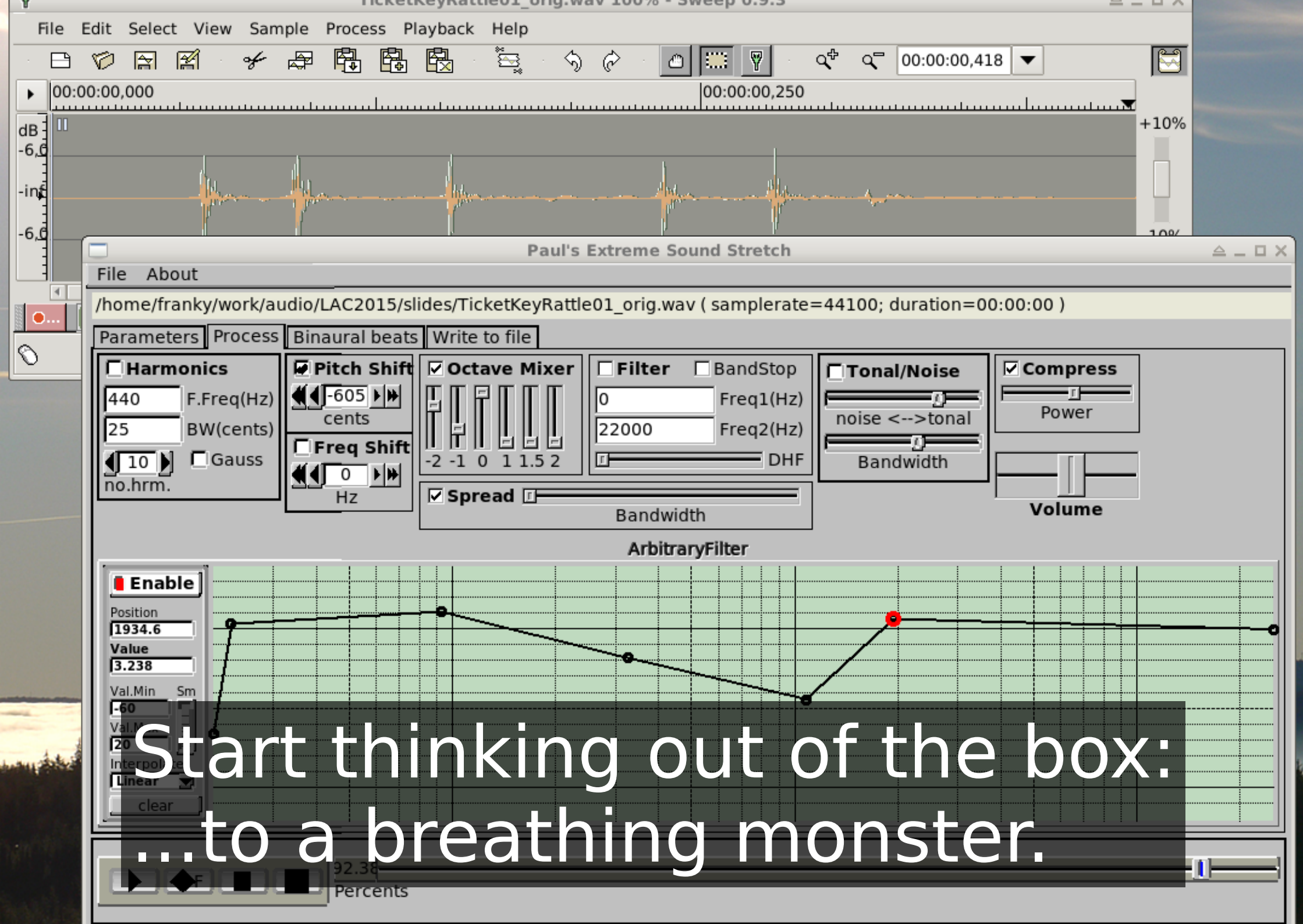
Going from stereo to mono samples:

```
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 chair. He is wearing a 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 shows a room with arched doorways and light-colored walls.

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!)