# Reactive Statistical Mapping: Towards the Sketching of Performative Control with Data

## eNTERFACE 2013 Summer Workshop on Multimodal Interfaces

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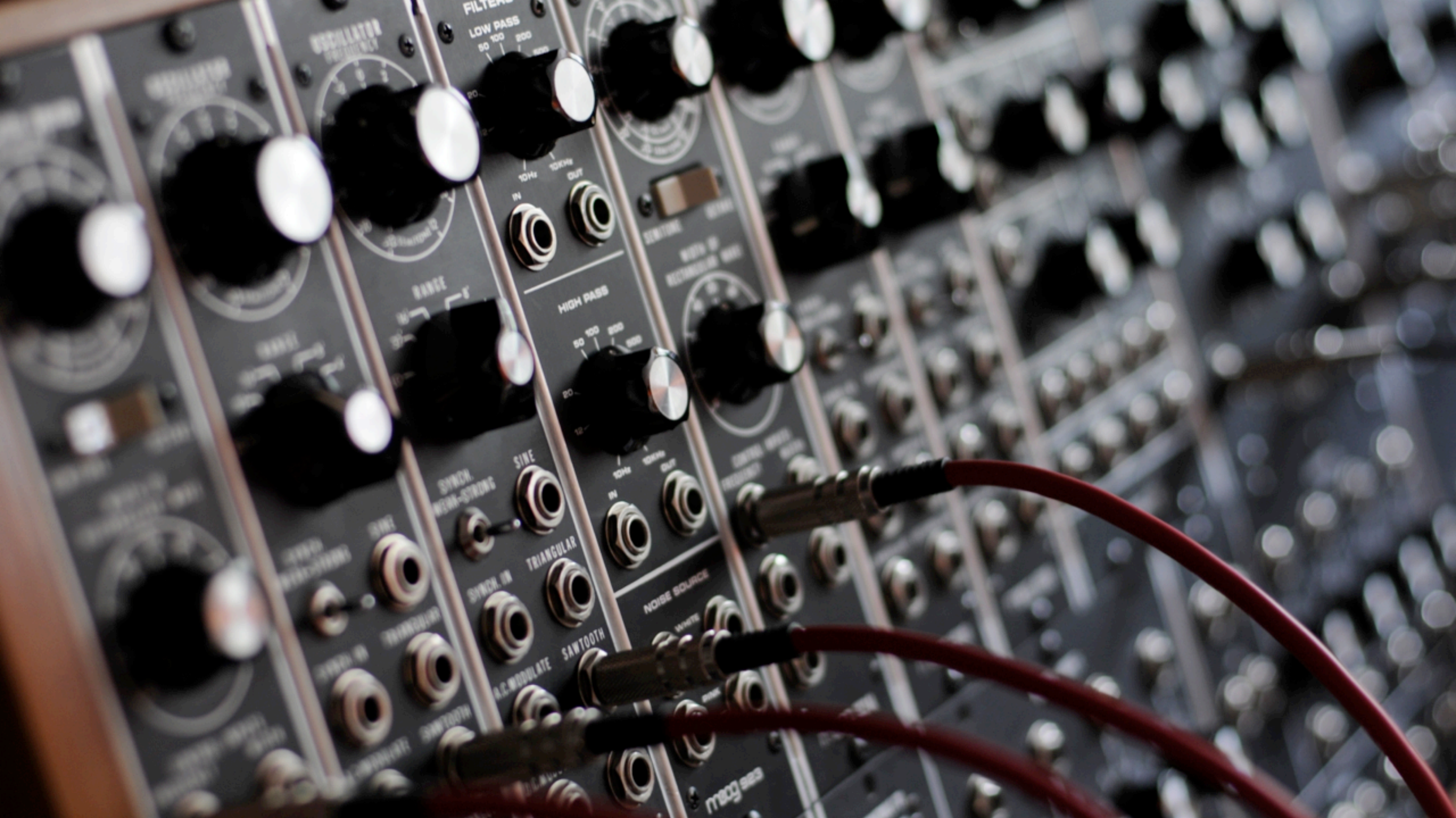
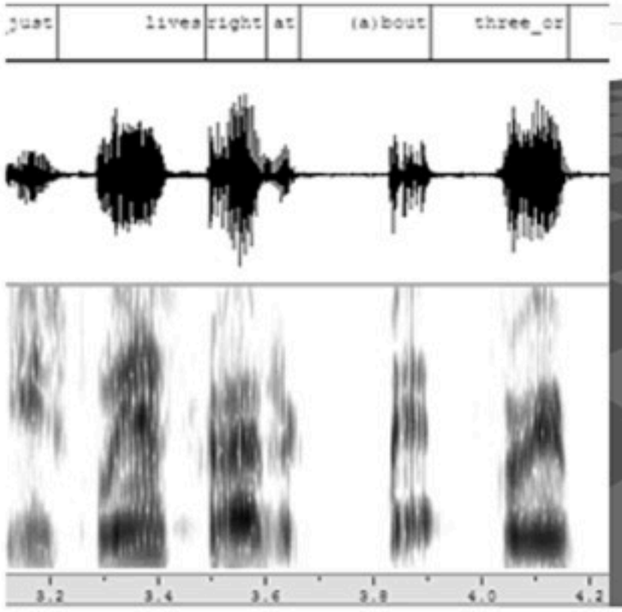
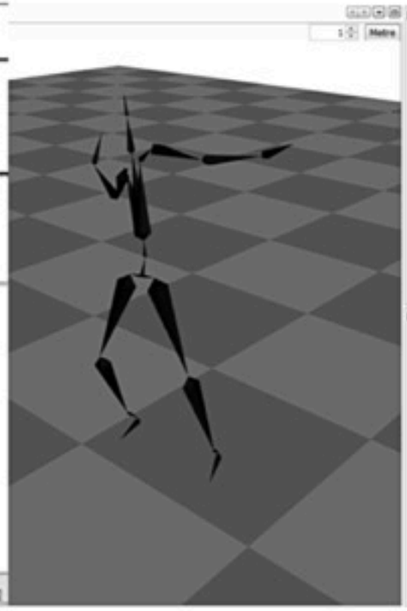
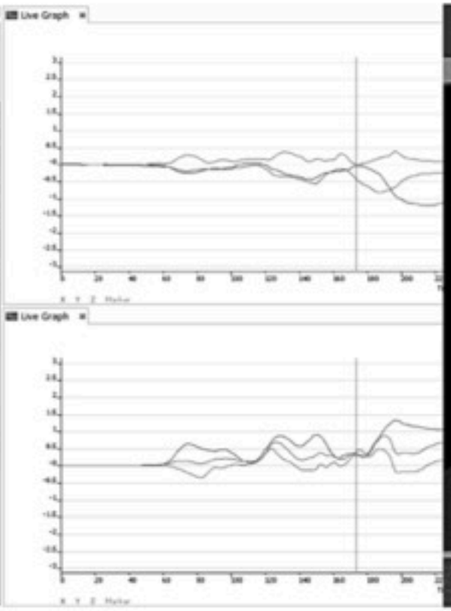
## what we do in this project?

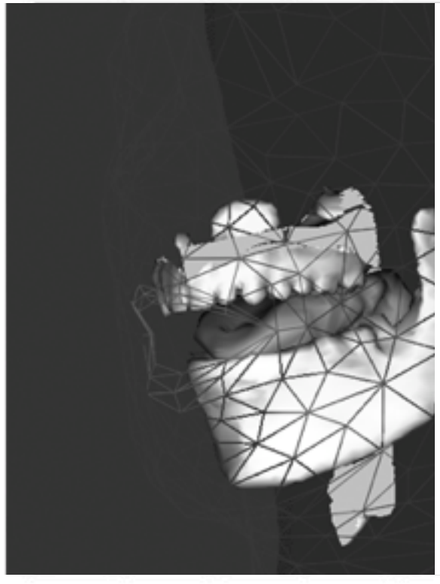
GMM/HMM-based techniques used in speech synthesis as a statistical mapping layer in multimodal performative systems

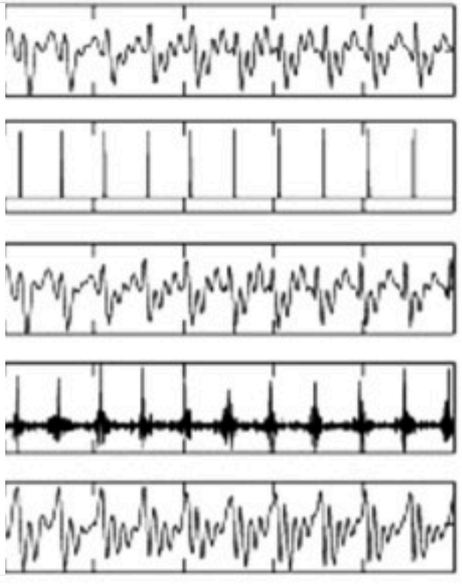

LOW PASS
HIGH PASS
SINE
TRIANGULAR
SAWTOOTH
NOISE SOURCE
WHITE
SYNCH. IN
A.C. MODULATE
RANGE
IN
OUT
10Hz
10KHz


just
lives
right
at
(a)bout
three_or
3.2
3.4
3.6
3.8
4.0
4.2




Live Graph
Live Graph

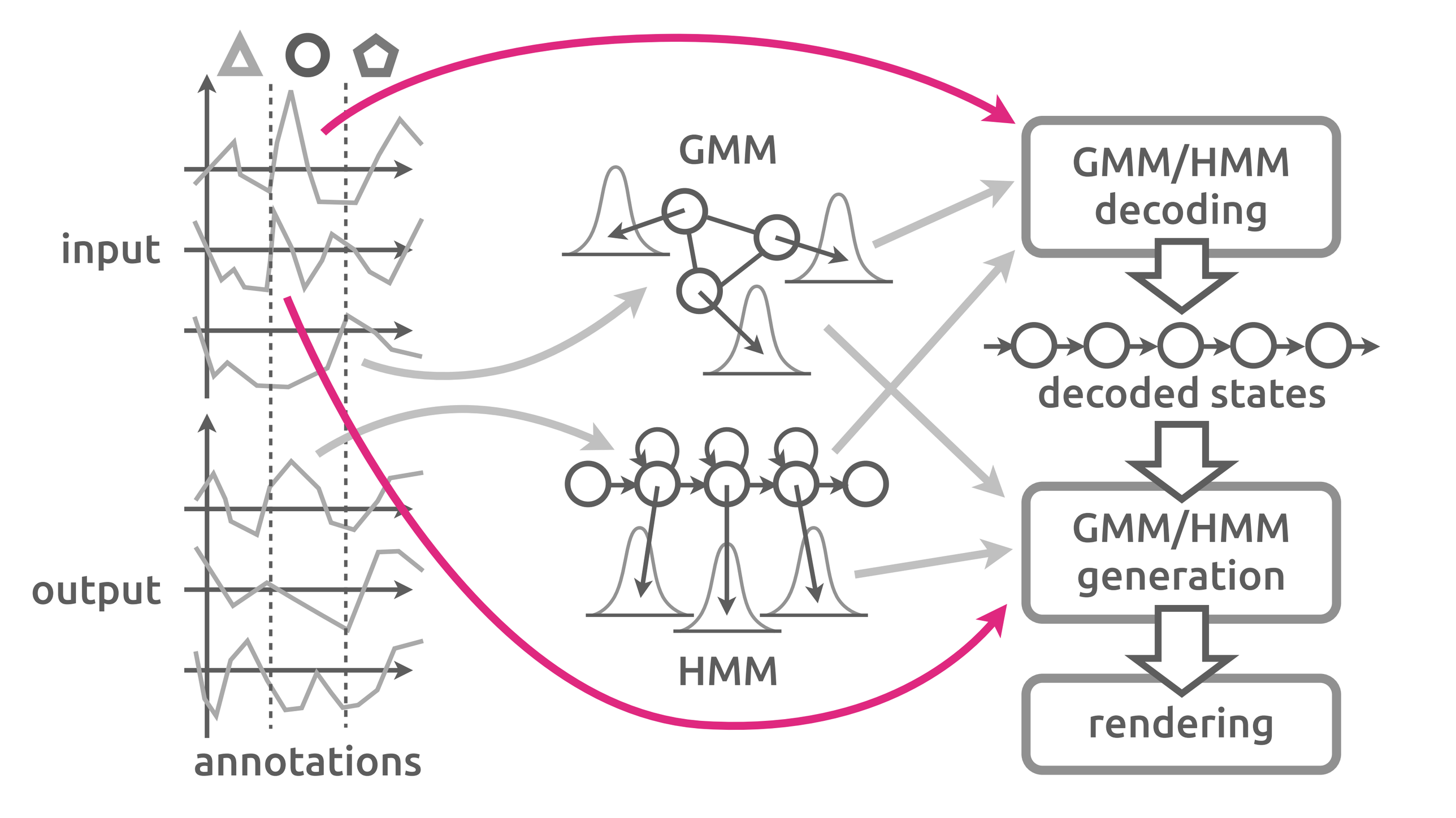




Sad

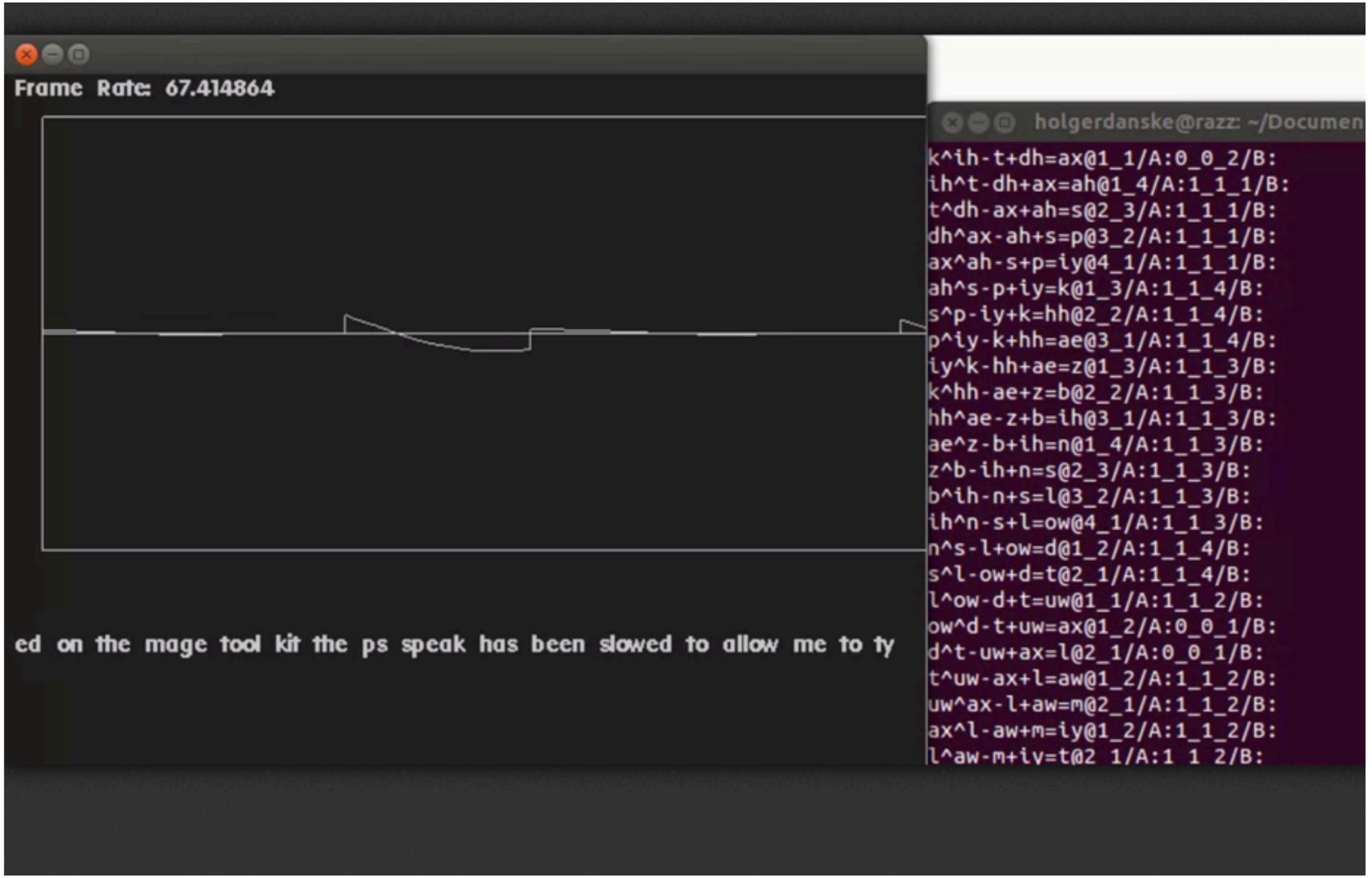
Afraid

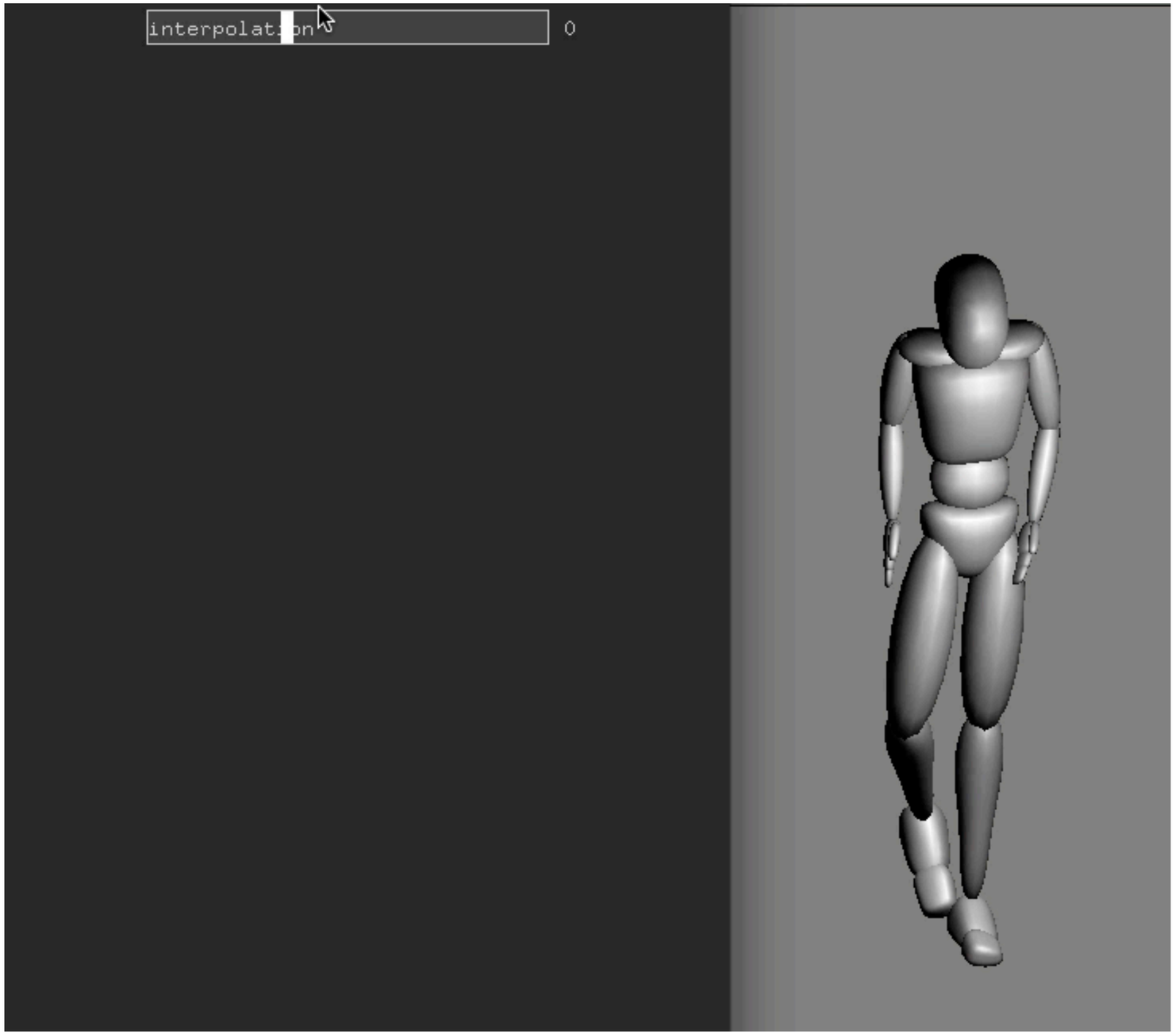
Drunk


input
output
annotations
GMM
HMM
GMM/HMM
decoding
decoded states
GMM/HMM
generation
rendering

realtime and reactive

decoding state sequence and generating trajectories on an acceptable sliding window


Frame Rate: 67.414864
ed on the mage tool kit the ps speak has been slowed to allow me to ty
holgerdanske@razz: ~/Documen
k^ih-t+dh=ax@1_1/A:0_0_2/B:
ih^t-dh+ax=ah@1_4/A:1_1_1/B:
t^dh-ax+ah=s@2_3/A:1_1_1/B:
dh^ax-ah+s=p@3_2/A:1_1_1/B:
ax^ah-s+p=iy@4_1/A:1_1_1/B:
ah^s-p+iy=k@1_3/A:1_1_4/B:
s^p-iy+k=hh@2_2/A:1_1_4/B:
p^iy-k+hh=ae@3_1/A:1_1_4/B:
iy^k-hh+ae=z@1_3/A:1_1_3/B:
k^hh-ae+z=b@2_2/A:1_1_3/B:
hh^ae-z+b=ih@3_1/A:1_1_3/B:
ae^z-b+ih=n@1_4/A:1_1_3/B:
z^b-ih+n=s@2_3/A:1_1_3/B:
b^ih-n+s=l@3_2/A:1_1_3/B:
ih^n-s+l=ow@4_1/A:1_1_3/B:
n^s-l+ow=d@1_2/A:1_1_4/B:
s^l-ow+d=t@2_1/A:1_1_4/B:
l^ow-d+t=uw@1_1/A:1_1_2/B:
ow^d-t+uw=ax@1_2/A:0_0_1/B:
d^t-uw+ax=l@2_1/A:0_0_1/B:
t^uw-ax+l=aw@1_2/A:1_1_2/B:
uw^ax-l+aw=m@2_1/A:1_1_2/B:
ax^l-aw+m=iy@1_2/A:1_1_2/B:
l^aw-m+iy=t@2_1/A:1_1_2/B:


interpolation
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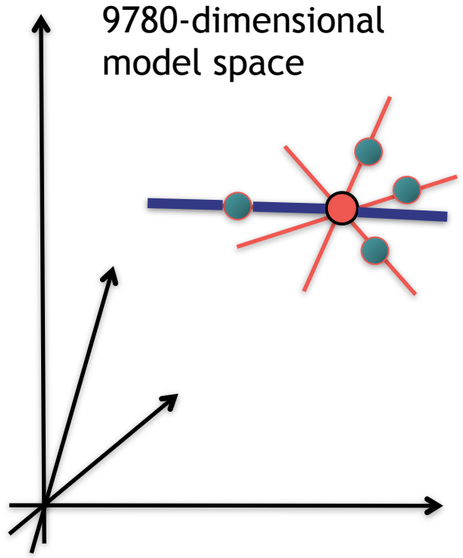
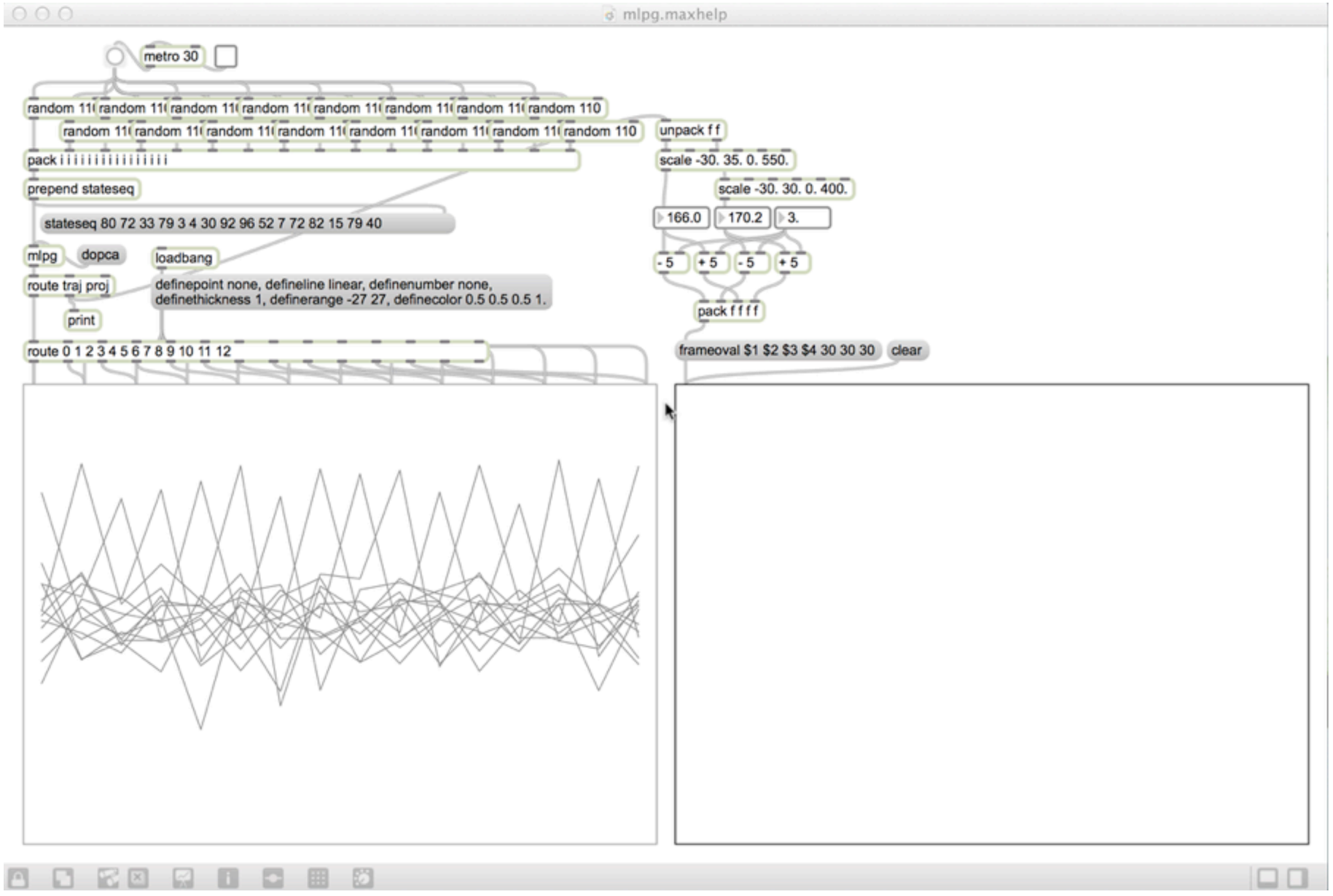

9780-dimensional
model space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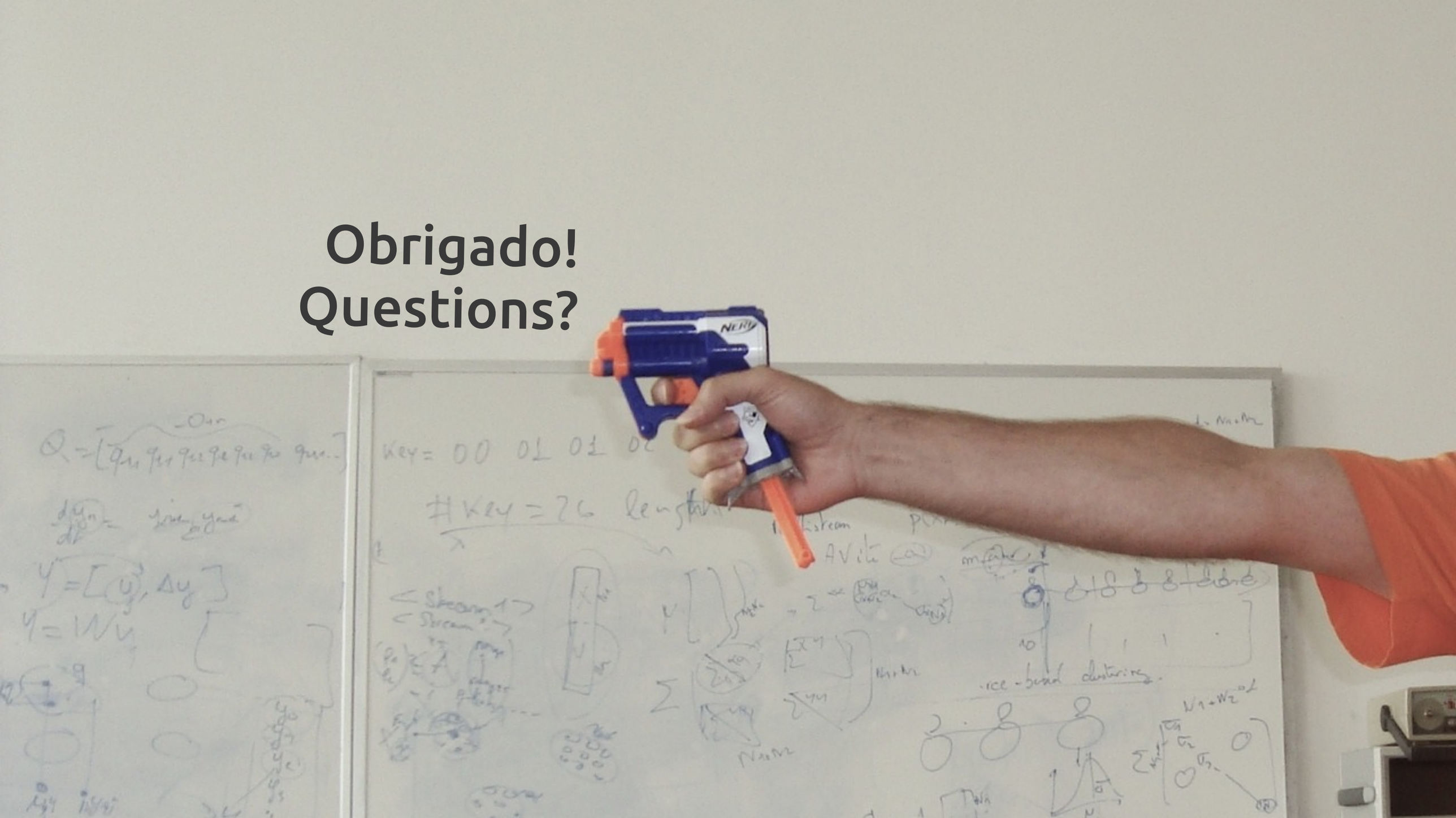
metro 30
random 110
pack i i i i i i i i i i i i i i i i
prepend stateseq
stateseq 80 72 33 79 3 4 30 92 96 52 7 72 82 15 79 40
mlpg
dopca
loadbang
route traj proj
definepoint none, defineline linear, definenumber none,
definethickness 1, definerange -27 27, definecolor 0.5 0.5 0.5 1.
print
route 0 1 2 3 4 5 6 7 8 9 10 11 12
unpack f f
scale -30. 35. 0. 550.
scale -30. 30. 0. 400.
166.0
170.2
3.
- 5
+ 5
- 5
+ 5
pack f f f f
frameoval $1 $2 $3 $4 30 30 30
clear

- realtime decoding of state sequences
- prototyping environment for the sliding state window and testing of various timing ideas
- inputs in HMM generation: investigating new coupling techniques, regression or FC matrix
- recording singing voice samples and explore GMM/HMM based modeling of voice quality

# Obrigado!
# Questions?