

Composing with computers? Let's remain serious!

Peter Swinnen
Composer
(EhB/KCB)



Composing with computers? Let's remain serious!

1. Context

Composing with computers?

Let's remain serious!

1. Context



- ✓ Craftsmanship

Composing with computers? Let's remain serious!

1. Context



- ✓ Craftsmanship
- ✓ Education

Composing with computers?

Let's remain serious!

1. Context



- ✓ Craftsmanship
- ✓ Education
- ✓ Art as the most individual expression of the most individual emotion

Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition

Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
 - ✓ Arnold Schönberg (1874 - 1951)



Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
 - ✓ Arnold Schönberg (1874 - 1951)
 - ✓ Darmstadt

Composing with computers?

Let's remain serious!

1. Context

2. Algorithmic Composition

- ✓ Arnold Schönberg (1874 - 1951)
- ✓ Darmstadt
- ✓ Dodekaphonism - Serialism - Stochastic music - Aleatoric music - etc.



Composing with computers?

Let's remain serious!

1. Context
2. Algorithmic Composition
 - ✓ Arnold Schönberg (1874 - 1951)
 - ✓ Darmstadt
 - ✓ Dodekaphonism - Serialism - Stochastic music - Aleatoric music - etc.
 - ✓ Markov chains - Set Theory - Interpolations - Formal Grammars - Cellular Automata - aLife Forms - Fractals - etc.

Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia

Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia
 - ✓ Synthesizers

Composing with computers?

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1. Context
2. Algorithmic Composition
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 - ✓ Synthesizers
 - Theremin - Trautonium - Ondes Martenot



Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia
 - ✓ Synthesizers
 - Theremin - Trautonium - Ondes Martenot
 - Köln versus Paris



Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia
 - ✓ Synthesizers
 - Theremin - Trautonium - Ondes Martenot
 - Köln versus Paris
 - FM-synthesis & MIDI

```
4D 54 68 64 00 00 00 06 00 01 00 05 01 E0 4D 54 72 6B 00 00 00 32 00 FF 03 10 41 70 70 72 65 6E 64 73 2D 6D 6F 69
2E 6D 69 64 00 FF 54 05 60 00 00 00 00 00 FF 51 03 03 D0 90 00 FF 58 04 05 00 60 08 84 8D 00 FF 2F 00 4D 54 72
6B 00 00 02 16 00 FF 04 0F 51 75 69 63 6B 54 69 6D 65 20 4D 75 73 69 63 00 FF 03 03 20 23 32 00 90 58 64 89 30 80
58 40 00 90 54 64 89 30 80 54 40 81 70 90 50 64 89 30 80 50 40 00 90 4C 64 89 30 80 4C 40 00 90 4D 64 89 30 80 4D
40 00 90 58 64 87 40 50 64 81 70 80 58 40 87 40 50 40 00 90 53 64 89 30 80 53 40 00 90 53 64 89 30 80 53 40 00
90 58 64 89 30 80 58 40 81 70 90 4D 64 89 30 80 4D 40 00 90 50 64 89 30 80 50 40 00 90 51 64 89 30 80 51 40 00 90
58 64 87 40 57 64 81 70 80 58 40 87 40 57 40 00 90 51 64 89 30 80 51 40 00 90 4D 64 89 30
```

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1. Context
 2. Algorithmic Composition
 3. The commercial utopia
 - ✓ Synthesizers
 - Theremin - Trautonium - Ondes Martenot
 - Köln versus Paris
 - FM-synthesis & MIDI
- => Grasp on Sound

Composing with computers? Let's remain serious!

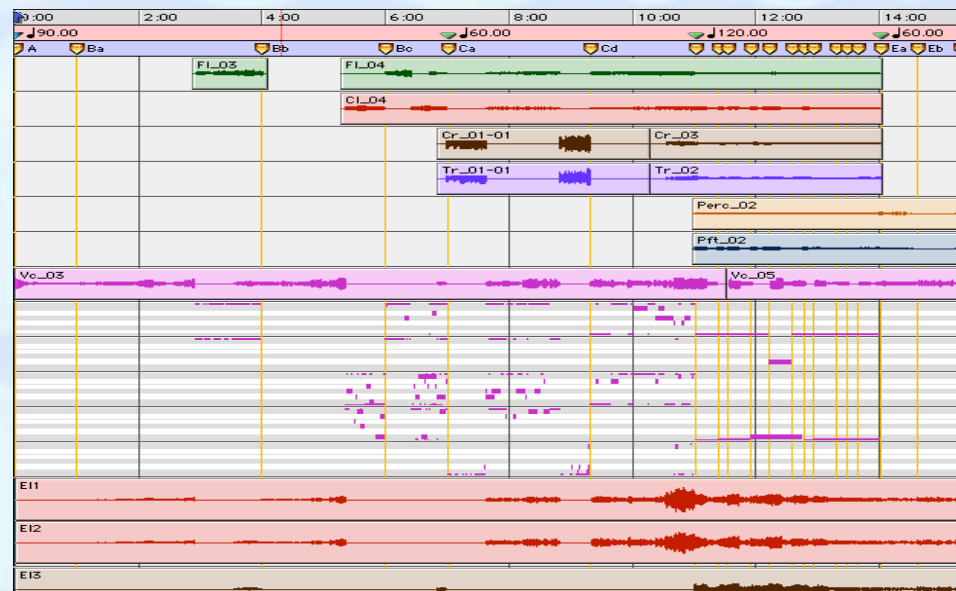
1. Context
2. Algorithmic Composition
3. The commercial utopia
 - ✓ Synthesizers
 - ✓ Sequencers

Composing with computers?

Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia

- ✓ Synthesizers
- ✓ Sequencers
 - Editing

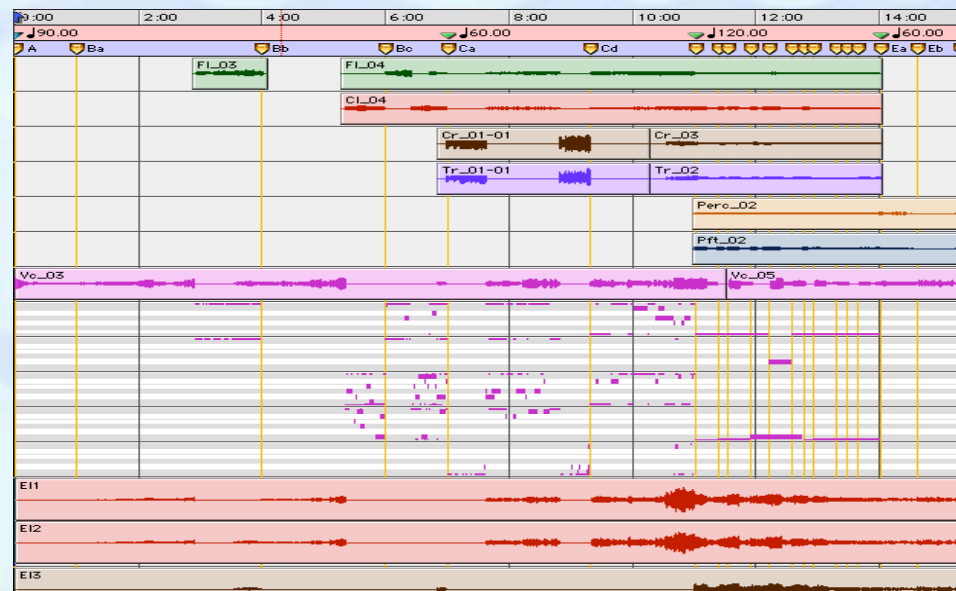


Composing with computers?

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1. Context
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- ✓ Synthesizers
- ✓ Sequencers
 - Editing
 - MIDI and Audio



Composing with computers?

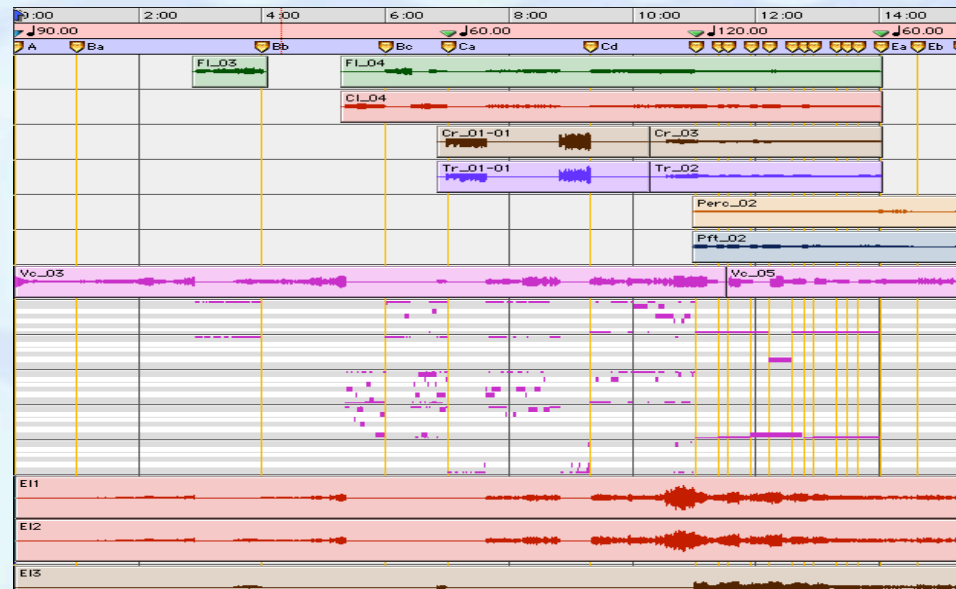
Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia

✓ Synthesizers

✓ Sequencers

- Editing
 - MIDI and Audio
- => Grasp on Form
and Timing



Composing with computers?

Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia
 - ✓ Synthesizers
 - ✓ Sequencers
 - ✓ PC & Software

Composing with computers?

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1. Context
2. Algorithmic Composition
3. The commercial utopia
 - ✓ Synthesizers
 - ✓ Sequencers
 - ✓ PC & Software
 - => Home Studio

Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia
4. Software for Composers

Composing with computers? Let's remain serious!

1. Context
2. Algorithmic Composition
3. The commercial utopia
4. Software for Composers
 - ✓ Music Notation
 - ✓ Improvisation Software

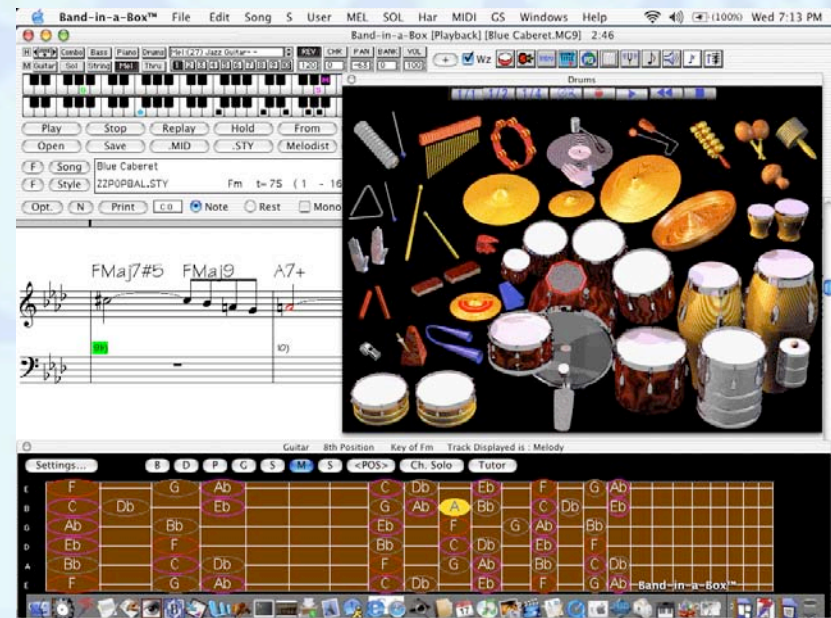
Composing with computers? Let's remain serious!

1. Context
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4. Software for Composers
 - ✓ Music Notation
 - ✓ Improvisation Software
 - Karaoke

Composing with computers?

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1. Context
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4. Software for Composers
 - ✓ Music Notation
 - ✓ Improvisation Software
 - Karaoke
 - Band in a Box



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 - ✓ Music Notation
 - ✓ Improvisation Software
 - ✓ Composing Software

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4. Software for Composers
 - ✓ Music Notation
 - ✓ Improvisation Software
 - ✓ Composing Software

Cyber Mozart - Easy Music Composer - FlexiMusic Kids Composer - Midi Quartet - Songtrix Gold - etc.

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4. Software for Composers

- ✓ Music Notation
- ✓ Improvisation Software
- ✓ Composing Software

Cyber Mozart - Easy Music Composer - FlexiMusic Kids Composer - Midi Quartet - Songtrix Gold - etc.

⇒ Everybody a Composer!

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4. Software for Composers

- ✓ Music Notation
- ✓ Improvisation Software
- ✓ Composing Software

Cyber Mozart - Easy Music Composer - FlexiMusic Kids Composer - Midi Quartet - Songtrix Gold - etc.

⇒ Everybody a Composer!

⇒ Analysis tools used as Composition tools

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5. Computer Aided Composing

Composing with computers? Let's remain serious!

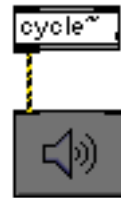
1. Context
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5. Computer Aided Composing
 - ✓ AlgoScore - Cecilia

```
; *****  
; ACCCI:      01_01_1.ORB  
; synthesis: simple(01),  
;             basic instrument(01)  
;             general purpose(1)  
; coded:      jpg 8/93  
  
sr = 44100  
kr  = 441  
ksmps =100  
nchnls = 1  
  
instr 1; *****  
idur  = p3  
iamp  = p4  
ifq1  = p5  
if1   = p6 ; free choice of envelope  
if2   = p7 ; and waveform  
  
      a2 oscili iamp, 1/idur, if2  
      a1 oscili a2, ifq1, if1  
      out      a1  
endin
```

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 - ✓ AlgoScore - Cecilia
 - ✓ Pure Data - MaxMSP



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✓ AlgoScore - Cecilia

✓ Pure Data - MaxMSP

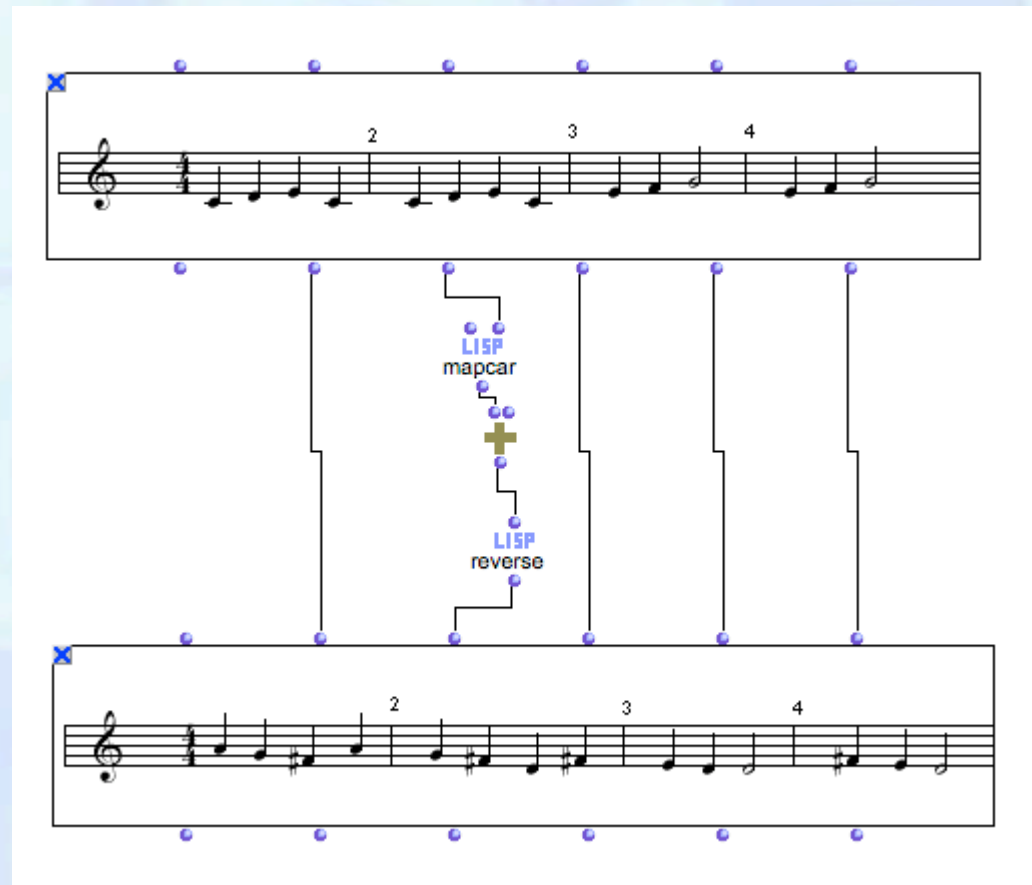
✓ Common Music
Open Music

```
(cmn (size 14)
      (automatic--measure-numbers :by-line)
      (always-show-staff-names nil)
      (first-measure-number 0)
      (staff-name-font "Times-Italic")
      (staff-name-font-scaler .6)
      (automatic-line-breaks nil)
      bracket
      (staff (staff-name "clarinet in A" (dx -.5)) treble (meter 3 4)
              c5 e begin-slur e5 e bar g5 e e5 e c6 q end-slur g5 e begin-slur e5 e bar
              d5 e f5 e a5 q end-slur f5 e begin-slur d5 e bar
              c5 e begin-beam b4 e e5 e d5 e g5 e f5 e end-slur end-beam bar
              ds5 q begin-slur e5 q end-slur c5 e begin-slur e5 e bar
              g5 e e5 e c6 q end-slur g5 e begin-slur e5 e bar
              dn5 e f5 e a5 q end-slur quarter-rest bar whole-rest bar line-break
              ...)
```

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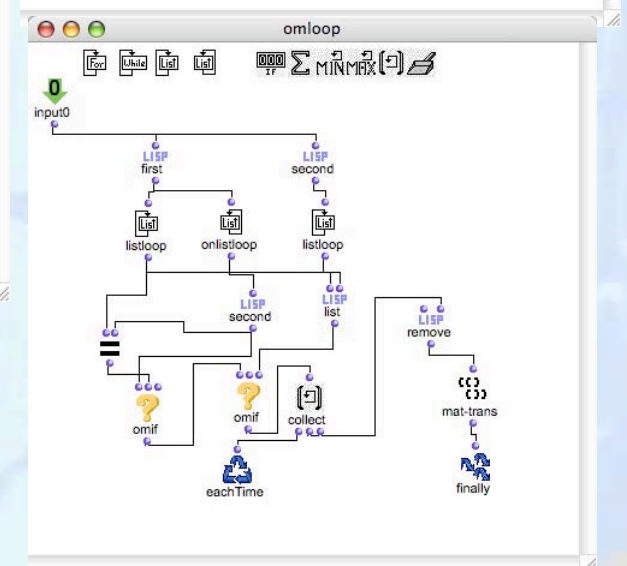
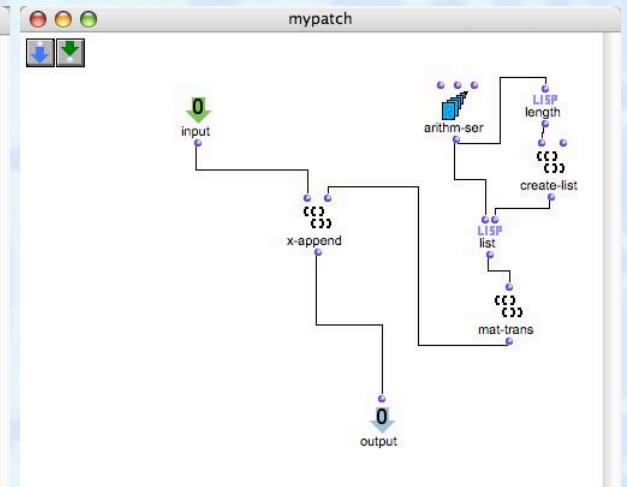
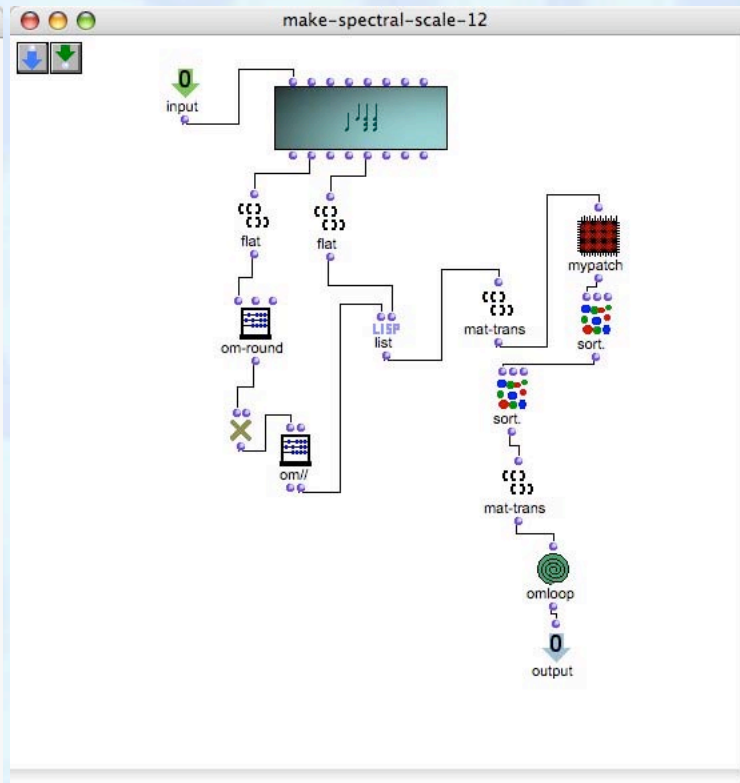
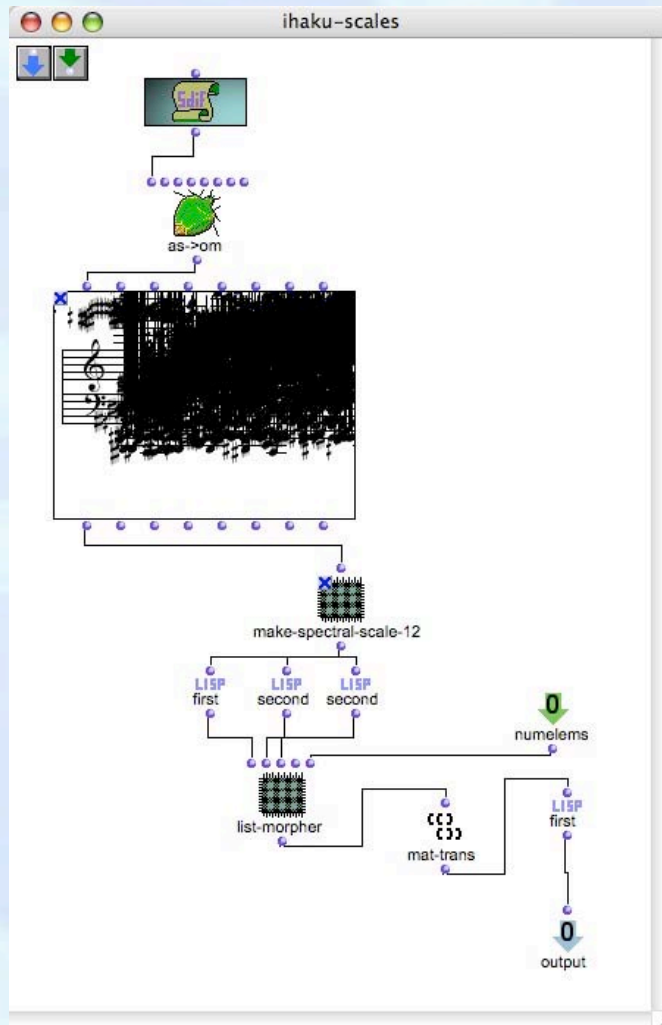


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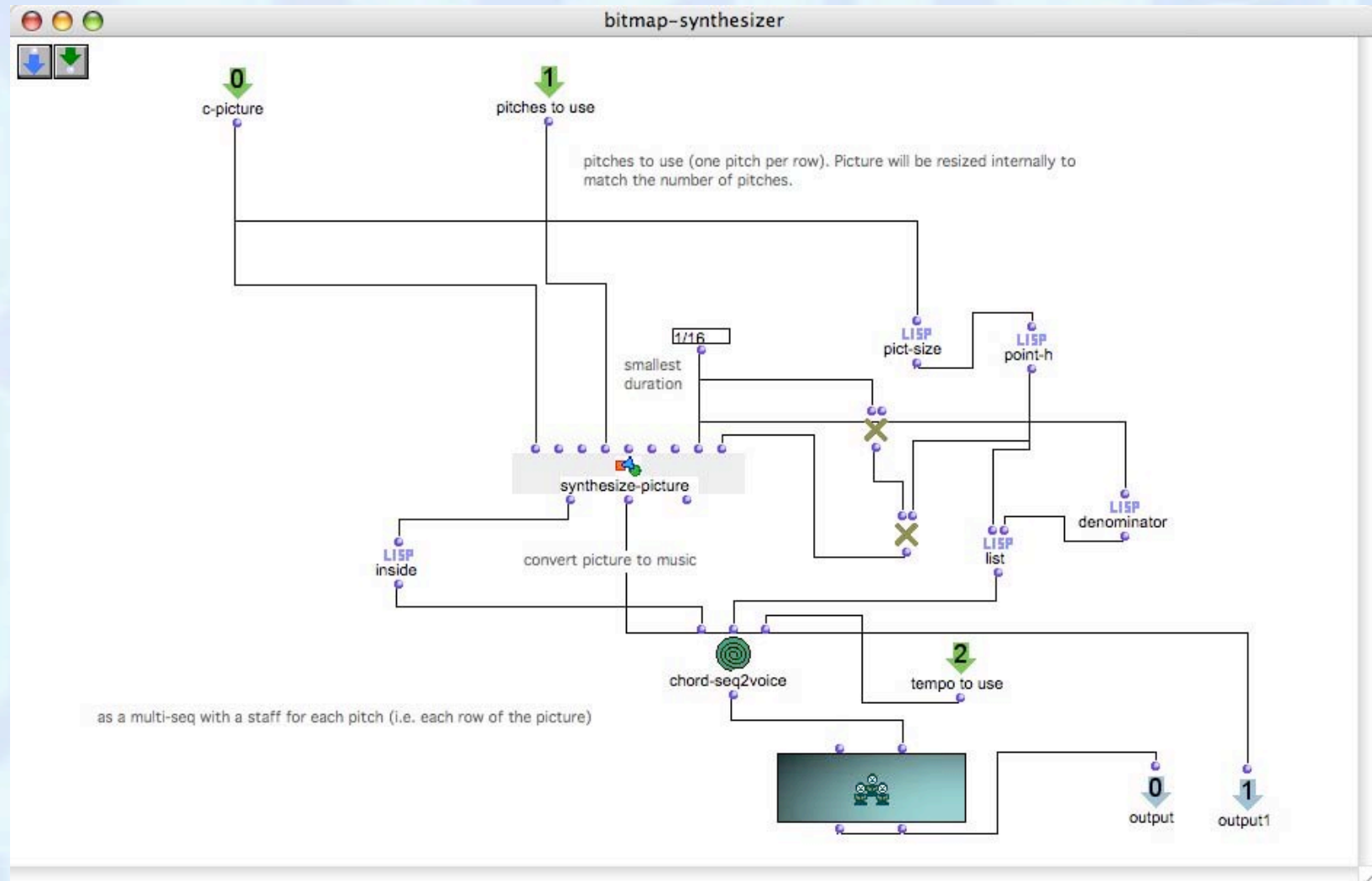


Composing with computers?

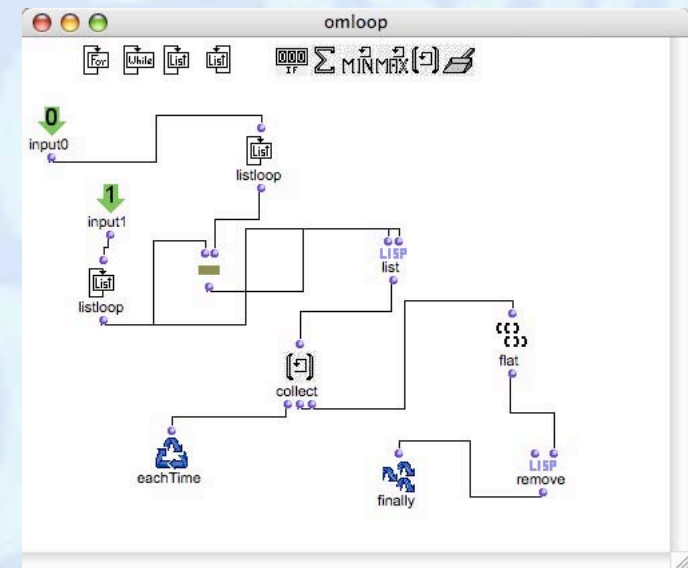
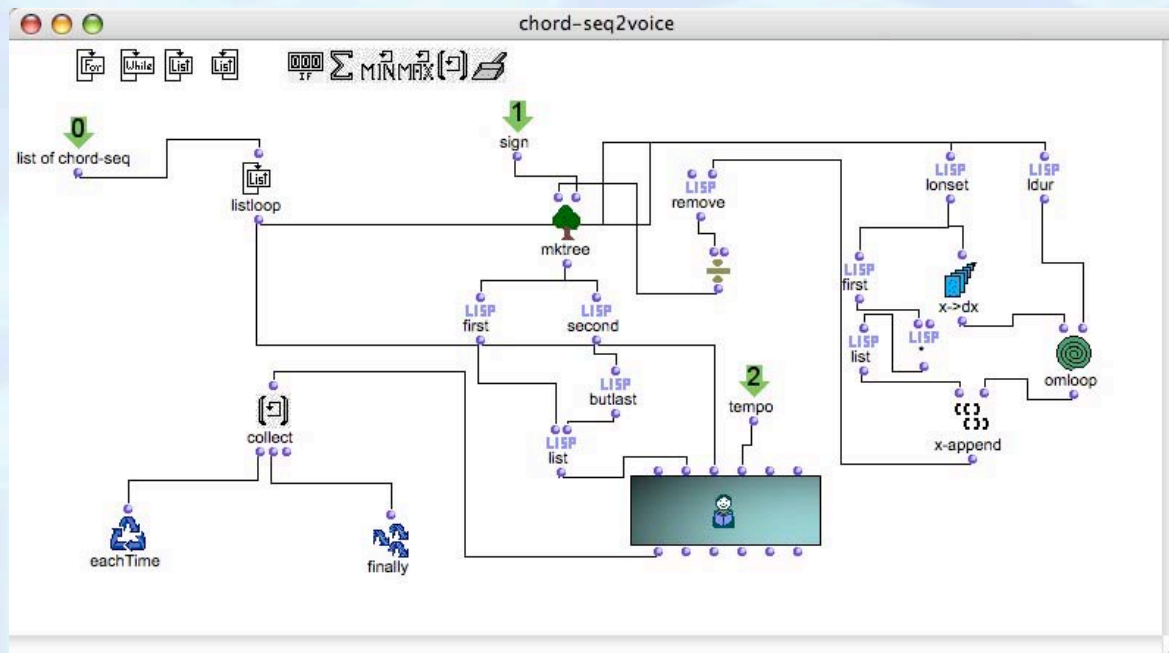
Let's remain serious!



Composing with computers? Let's remain serious!



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Composing with computers? Let's remain serious!

Durata: ca 1min30

for Frank Van Eycken

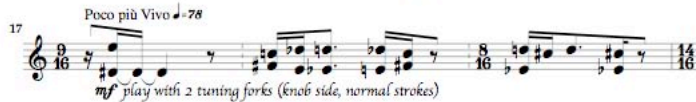
Iháku per Glockenspiel

Peter Swinnen
2007

Andante $\text{♩} = 65$
The size of the note indicates its relative intensity:
the bigger the notesize, the stronger the note



pp play with 2 tuning forks (fork side, dead strokes)



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Iháku* pg 1



Iháku* pg 2

Composing with computers? Let's remain serious!

5. Computer Aided Composing

- Artificial Intelligence

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5. Computer Aided Composing

- Artificial Intelligence
- Open Model

Composing with computers? Let's remain serious!

5. Computer Aided Composing

- Artificial Intelligence
- Open Model
- Empty Box

Composing with computers? Let's remain serious!

5. Computer Aided Composing

- Artificial Intelligence
- Open Model
- Empty Box
- Craftsmanship

Composing with computers? Let's remain serious!

5. Computer Aided Composing

- Artificial Intelligence
- Open Model
- Empty Box
- Craftsmanship
- Education

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- Artificial Intelligence
- Open Model
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- Craftsmanship
- Education
- Art as the most individual expression of the most individual emotion

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5. Computer Aided Composing

- Artificial Intelligence
 - Open Model
 - Empty Box
 - Craftsmanship
 - Education
 - Art as the most individual expression of the most individual emotion
- ⇒ Algorithm = Piece?

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6. Conclusions

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 - ✓ Efficiency

Composing with computers? Let's remain serious!

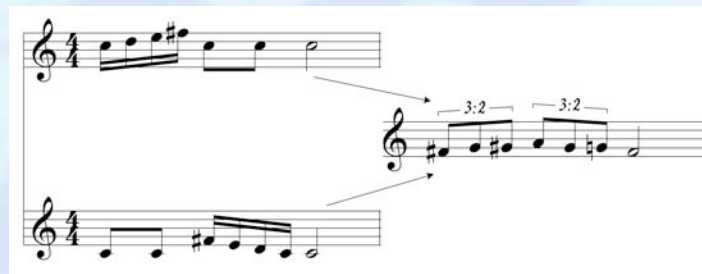
1. Context
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5. Computer Aided Composing
6. Conclusions
 - ✓ Efficiency
 - ✓ Performers

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1. Context
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6. Conclusions

- ✓ Efficiency
- ✓ Performers
- ✓ Artistic



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6. Conclusions

- ✓ Efficiency
- ✓ Performers
- ✓ Artistic

Working process

- ♦ Past: idea – realise in musical notation –
|[: try out (mostly on the piano) – correct – :| – concert –
reflection
- ♦ Now: idea – model on the computer –
|[: listen to computer maquette – **reflection** – correct computer
model :| – render in music notation – concert – **reflection**

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7. Questions