



## City Research Online

### City, University of London Institutional Repository

---

**Citation:** Gato, Gonçalo (2016). Algorithm and Decision in Musical Composition.  
(Unpublished Doctoral thesis, Guildhall School of Music and Drama)

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

---

**Permanent repository link:** <https://openaccess.city.ac.uk/id/eprint/17292/>

**Link to published version:**

**Copyright:** City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

**Reuse:** Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Gonçalo Gato

# Stochafrica

for percussion



*Stochafrika* was commissioned by percussionist and jazz drummer Pedro Segundo and derives its name from the use of indeterministic procedures. It pays tribute to Xenakis, the developer of so-called Stochastic Music. A great deal of the compositional work relied on programming the computer so that it would generate *ostinati* I could select and elaborate. These *ostinati* remind me of Mozambican timbila rhythms.

**Instruments:**

Mbila (or similar). Mbila is the singular of timbila, a Mozambican instrument. Because the tuning varies from instrument to instrument and does not conform to equal temperament it is notated on a three-line staff, the lines delineating low, mid-low, mid-high, and high registers. Pitch should be chosen accordingly and follow the written contour.

Vibraphone (plus pedal stage weight)

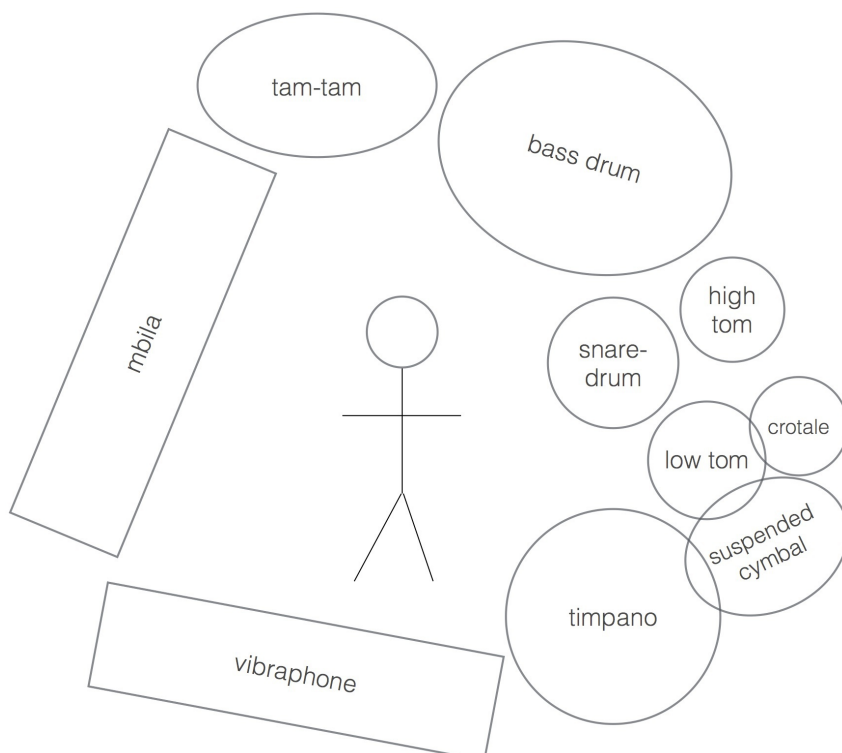
Triangle  
 Crotales  
 Suspended Cymbal  
 Tam-tam

Snare drum  
 2 Toms (high and low)  
 28" Timpano  
 Bass drum

**Unpitched percussion set notation:**



**Suggested setup:**



**Execution notes:**

- Suggested setup should be adjusted or changed to meet the performance strategy.
- When the vibraphone is coupled to the timpano (rehearsal mark B), a stage weight is used to lock the vibraphone pedal at half position. It should be placed near the pedal at the start.



# Stochafrica

Gonçalo Gato

♩ = 240

hard mallets

Mbila

*p*

Mbila

Mbila

Mbila

*f*

Mbila

*p*

Mbila

♩ = 200

Mbila

*f* *mf*

Mbila

*p*

Mbila

56 as close as possible to indicated pitch *ff*

(Unmeasured)

Tam-tam  
soft beaters

*pp* *ff*

4/4

♩ = 100

Vibraphone

**A** hard mallets  
(motor off)

Vib. 63 *mp*  
pedalling should follow slurring (*legato*) and durations

Vib. 67 *p* *mf*

Vib. 73 *f*

Vib. 78 *mp* *f* *p*

Vib. 81 *f*

Vib. 83

Vib. 85 *ff*

Vib. 87 *mf* *f*

89 Vib. *ff*

91 Vib. *f*

93 Vib. *f*

95 Vib. *f*

97 Vib. *f*

99 Vib. *f*

101 Vib. *senza pedale* *< ff*



104  
Vib. *mf*

112  
Vib.

121  
Vib. *f*

125  
Vib. *pp* *ff*

128  
Vib. *f*

135  
Vib. *ff* *f*

139  
Vib.

146  
Vib.

place  
stage  
weight  
on vib.  
pedal

**B**

motor on, slow speed  
balance the dynamic of vibraphone and timpano

153

Vib. *f*

Timp. *f*

vibraphone: use stage weight to lock the pedal at half position

161

Vib.

Timp. *gliss.*

168

**Più mosso**

**Tempo**

Vib.

Timp. *gliss.*

175

**Più mosso**

**Tempo**

Vib.

Timp. *gliss.*

181

**Più mosso**

Vib.

Timp. *gliss.*

**Tempo**

189

Vib.

Timp.

**Più mosso**

196

Vib.

Timp.

**Tempo**

**Più mosso**

201

Vib.

Timp.

**Più mosso**

206

Vib.

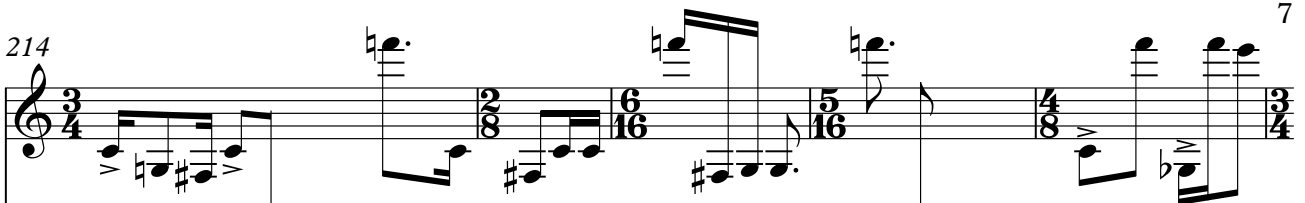
Timp.


210

Vib.


Timp.


214

Vib. 

Timp. 

219

Vib. 


Timp. 

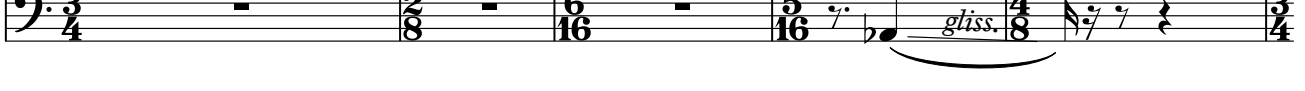
224

Vib. 

Timp. 

229

Vib. 

Timp. 

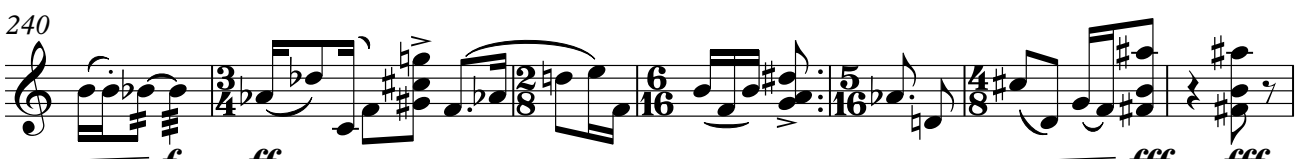
234

Vib. 

stage weight off, pedal as before

*p*

240

Vib. 

*f ff fff fff*

247  
Vib. *f* *ff* *ff* *ff* *fff*

253  
Vib. *ff*  
Ped.

**C**  $\text{♩} = 240$   
Mbila  
254 hard rubber mallets

Mbila *mp*

262  
Mbila *f* *mp*

269  
Mbila *f*

275  
Mbila *ff*

280  
Mbila *mp*

285  $\text{♩} = 200$   
Mbila *p* *mp*

Mbila 294  $\text{♩} = 240$   $\text{♩} = 200$

Mbila 294 is a musical score for Mbila. It begins with a double bar line and a common time signature. The tempo is marked as quarter note = 240. The piece starts with a *mf* dynamic. The notation includes several measures with complex rhythmic patterns, including sixteenth and thirty-second notes. A crescendo hairpin leads to a *ff* dynamic. The tempo then changes to quarter note = 200. The piece concludes with a *f* dynamic and a final double bar line.

Mbila 301

Mbila 301 is a musical score for Mbila. It begins with a double bar line and a common time signature. The piece starts with a *mp* dynamic. The notation includes several measures with complex rhythmic patterns, including sixteenth and thirty-second notes. The dynamics progress from *mp* to *mf* and finally to *f*. The piece concludes with a final double bar line.

Mbila 309

Mbila 309 is a musical score for Mbila. It begins with a double bar line and a common time signature. The piece starts with a *p* dynamic. The notation includes several measures with complex rhythmic patterns, including sixteenth and thirty-second notes. A crescendo hairpin leads to a *ff* dynamic. The piece concludes with a *pp* dynamic, a *ff* dynamic, and a final double bar line. A *Tam-tam* symbol is present above the final measure.

10 **D** ♩ = 280

drum sticks  
316

high tom  
susp. cymbal  
bass drum

triangle

snare drum

low tom

Perc.  
set

Timp.

325

Perc.  
set

Timp.

334

Perc.  
set

Timp.

343

Perc.  
set

351

snare off

Perc.  
set

360

Perc.  
set

Timp.

365

Perc. set

Timp.

370 with brushes

Perc. set

Timp.

*p*

378

Perc. set

Timp.

rim shot

*f*

with hands  
tune timpano to highest pitch

385

Timp.

rim

centre

(rim)

(centre)

*mp*

391

Timp.

hit bowl side

397 Freely improvise based on previous ostinato, varying sounds and rhythms throughout

Timp.

X

~ 15s



12 **E** 398 sticks

Perc. set *f*

Timp. *f* *gliss.*

404

Perc. set

Timp.

410

Perc. set

Timp. *crotale*

416

Perc. set

Timp.

424

Perc. set

Timp. *ff*

431

Perc. set

Timp.

436

Perc. set

Timp.

Perc. set

*mp*

Timp.

*mp*

452

choose sound

Perc. set

Timp.

462

Perc. set

471

Perc. set

*f*

Timp.

B. D.

rim shot

*f*

480

Perc. set

Timp.

B. D.

Perc. set

*mp*

Timp.

*gliss.*

500

Perc. set

Timp.

511

Perc. set

Timp.

521

Perc. set

Timp.

528

Perc. set

*pp*

Timp.