De: **SMC2019** smc2019@easychair.org
Objet: SMC2019 notification for paper 103
Date: 22 mars 2019 à 14:41
À: Jérôme Villeneuve jerome.villeneuve@gipsa-lab.fr

Dear Jérôme Villeneuve

Thank you for submitting your work to SMC2019.

We are pleased to inform you that your paper
103 - MI-GEN~: An Efficient and Accessible Mass-Interaction Sound Synthesis Toolbox
has been ACCEPTED for ORAL PRESENTATION and for publication in the Proceedings of SMC2019.

This year all submissions received at least 3 independent reviews, and a metareview by a Program Committee Member. Below you can find the reviews and metareview for your contribution.

The deadline for camera-ready papers is
April 5, 2019:
http://www.easychair.org/conferences/?conf=smc2019
You will need to upload to EasyChair two pdf files:
1) the camera-read paper, and
2) a document explaining how you have taken into
account reviewers' comments in the final version.
The Program Committee will verify that you have incorporated changes recommended by the reviewers, and that you have followed carefully the SMC2019 template.

Please note
At least one author of your paper must register to the conference before April 10, 2019. Failure to have at least one such registration will result in removal of the paper from the Program and from the Proceedings.

We are looking forward to seeing you in Malaga.
Best regards
Stefania Serafin, Federico Avanzini
SMC2019 Program Co-Chairs

---------- REVIEW 1 ----------
PAPER: 103
TITLE: MI-GEN~: An Efficient and Accessible Mass-Interaction Sound Synthesis Toolbox
AUTHORS: James Leonard and Jérôme Villeneuve

Overall evaluation: 2 (accept)

---------- Overall evaluation ----------
This is an interesting paper dealing with realisation of simple physical models in Max. I believe that the paper should be published, but there are a number of issues in the mathematical formalism, and in some conclusion drawn by the authors. First and foremost, I believe that the authors are using a way too restrictive stability condition. Because this is quite an important accusation, I am attaching a PDF with what I think should be used as a stability condition for a mass-spring-damper system in the form presented by the authors. Considering for simplicity the lossless case (i.e. z = 0), the authors give the following stability: k < 1/2/omega_0, with omega_0^2 = K/M. This is one quarter of the stability condition for the lossless oscillator (see attached PDF). The problem is that by using the stability condition described by the authors, one is not able to use the whole allowable bandwidth, and this might result in poorly resolved output signals (although, certainly, stab!
ility is guaranteed).

Another slightly worrying aspect is that, in the current setup, it seems that only adjacent mass-springs are interacting (i.e. stencil of width 3 in the 1D case). This does not allow to simulate, for instance, stiffness in strings (where the interaction is extended further, and the stencil of the interaction is 5 as opposed to 3). Hence, in section 5.2.3, it is incorrect to state that the current setup allows to simulate anything with Newtonian point-based mechanics. Stiff strings, but also bars and plates, cannot be simulated this way.

Other comments
-Remove the dot in eq 1
-Remove the dot in the second line of eq 4
-Eq 5 looks weird, perhaps the = sign should come before the + and - signs.<This review contains an attachment, see the file review_1.pdf attached to this letter.>

---------- REVIEW 2 ----------
PAPER: 103
TITLE: MI-GEN~: An Efficient and Accessible Mass-Interaction Sound Synthesis Toolbox
AUTHORS: James Leonard and Jérôme Villeneuve

Overall evaluation: 2 (accept)

---------- Overall evaluation ----------
This submission discusses a software toolbox for mass-interaction synthesis. It discusses how to visualize the vibration of mass

This submission discusses a software toolbox for mass-interaction synthesis. It discusses how to visualize the vibration of mass meshes and how to simulate a vibrating fretted string. This work is worth publishing at the SMC conference. I give a few additional comments below.

The first sentence of the intro seems to need references to back up its claim.

There is a brand new paper that discusses the Pianoteq physical modeling piano and others. This paper could be cited in Sec. 1.2:
B. Bank and J. Chabassier, "Model-Based Digital Pianos: From Physics to Sound Synthesis," IEEE Signal Processing Magazine, vol. 36, no. 1, pp. 103-114, Jan. 2019.

Eq. (1): The dot is not usually used as the multiplier.

Section 2 is a nice summary of the mass-interaction technique.

Figure 1 is slightly too small. It is hard to read the small white text on black background. Can you, please, increase the figure by rearranging the blocks a little?

The link mi-creative.eu/mi-gen does not work.

Some typos:
- Kirschoff ---> Kirchhoff
- Ref. [7]: stk ---> STK
- Ref. [14]: instrumentsnatural

Nice work!

---------- REVIEW 3 ----------
PAPER: 103
TITLE: MI-GEN~: An Efficient and Accessible Mass-Interaction Sound Synthesis Toolbox
AUTHORS: James Leonard and Jérôme Villeneuve

Overall evaluation: 2 (accept)

---------- Overall evaluation ----------
Thank you for this informative and well readable paper.

The paper presents a new library for mass-interaction modelling in Max. It is a very interesting work that makes mass-interaction modelling more accessible to the sound and music computing community.

Few points that need improvement or correction:

- Please include web links for all of the software mentioned in the paper (footnotes).
-Authors to consider the following correction: Mass-interaction modelling dates in the late 70s with publication in the 80s such as “Responsive Input Devices and Sound Synthesis by Stimulation of Instrumental Mechanisms: The Cordis System”
-Please include a citation for the stability criterion.
-The environment PMPD in Pure Data from Cyrille Henry would be a useful reference in this paper.
-“We could say that our approach yields physical interaction …..Newtonian point-based mechanics,” - perhaps the authors could explain some more how this is different from the Cordis-Anima approach.
-The authors could talk more extensively about the scripting language used in Synth-A-Modeler and Genesis.
-A more detailed comparison between HSP V2 and the presented library would be beneficial

---------- METAREVIEW ----------
PAPER: 103
TITLE: MI-GEN~: An Efficient and Accessible Mass-Interaction Sound Synthesis Toolbox

This paper presents the sound synthesis toolbox Mi-Gen for physically-based sound synthesis. All of the reviewers gave this paper "accept" (2).

Reviewer 1 describes that this is an interesting paper dealing with realisation of simple physical models in Max and that the paper should be published. However, he mentions some issues in the mathematical formalism and in the conclusions. In particular, the reviewer comments about the stability condition. Moreover, the reviewer is worried by the fact that only adjacent mass-springs are interacting, as this does not allow for simulating stiffness in strings. Therefore, it is incorrect to state that the current setup allows to simulate anything with Newtonian point-based mechanics.

The second reviewer also agrees that the work is worth publishing at SMC and is overall positive. The reviewer also mentions that Section 2 is a nice summary. Negative points raised concern formalities such as the math (Eq.1 and the dot product), the fact that Figure 1 is slightly too small, and a link that does not work.

The last reviewer believes that the paper is well readable and describes it as "very interesting work that makes mass-interaction modelling more accessible to the sound and music computing community". He raises the following suggestions for improvement: including web links for software as footnotes, including some more references (e.g. a citation for the stability criterion), as well as minor remarks about the language used.

As a meta-reviewer, I would just like to make a minor remark about the format of the Abstract (I do not understand why it is

separated into two different sections).

review_1.pdf