Minutes

Federico Fontana, Tuesday 21 September 2010 - 19:11:31

--- MINUTES FROM THE *NIW* MEETING ---

9-10 JUNE 2010

McGill University
Center for Intelligent Machines (CIM)
McConnell Engineering Building
3480 University St. - 4th floor

Author: F. Fontana

JUN. 9 - The meeting starts at 8.45am, with coffee break and work to start video conferencing with AAU and UPMC. (Previous work made to test configurations for the connections between European delegates participating from remotely and CIM started on June 7; overall, it took a couple of hours)

Participants:

McGill: Y. Visell, J. Cooperstock, G. Millet, G. Chaw, M. Otis, S. Smith.
UNIVR: F. Fontana, S. Papetti, M. Civolani
INRIA: G. Cirio, M. Marchal
UPMC: A. Berrezag, V. Hayward (both in teleconference)
AAU: S. Serafin (in teleconference)

9.15am - Tour the table. Professor Paul Kry from McGill is welcome as an external attendant.

9.30am - McGill Research update

- Ground perception and vibration: Synthesis of microscopic texture through the tiles.
- New experiments: Perception of stiffness. Tangentially force-actuated vibrotactile tiles may be researched in future months.
- Compensated tiles: Force equalization of the tile physical structure and user's load on the tile.
- Interaction with cartographic data: A demo will be shown in the afternoon.
- Target selection with a visual floor touch surface.

Several questions are addressed to the McGill presentations.

10.30am - INRIA Research and activity update

- Recent student exchanges are listed.
- Results from the NIW tutorial at the IEEE VR2010 conference are briefly summarized.
- Visual simulation of slopes: Varying the first-person height gives promising results. Conversely, varying only the horizontal velocity with steepness was not successful. The joint provision of the two variation is effective.
- Early simulation of liquid interactions (with McGill): Walking over liquids using physically-based sounds is the research task of GC during his staying at McGill. Results are shown already proving the potential of the method, although in non-NIW interaction contexts.

- Separation of Time-Frequency patterns in sounds (with UNIVR): The experiment is robust, but the saliency of the results does not clearly point to a neat conclusion in terms of subjective tendencies.
- Ground affordances: Presentation of the final results from the experimental analysis.
Several questions are addressed to the INRIA presentations.

11.30am - Short break

11.45am - UNIVR Research update

- Current state of the active shoes: Improvements in the acquisition and reliability of sampling of the input data through the generation of new software for the Arduino card.
- Audio-haptic experiment and illusion: Presentation of the hypothesis, methodology, and protocol. Early results from the experimental analysis are very promising.

12.15pm Lunch

2.30pm Demos of the facilities at CIM are shown to the attendants.

3.15pm Project status

- Per the contacts with the participants, and after the morning review of the current research, FF thinks that the project is healthy in terms of technological and research advancements. A deeper analysis will be attempted later on this meeting, after having seen also the presentations from AAU and UPMC.

- FF reads the summary of the final first review report of the NIW project, consolidated in Paris. Among all the raised issues, one seems to have been still left partially unanswered by the consortium, that is, the reviewers' suggestion to perform an experiment comparing the shoe against the tiles. The recent experiments made at McGill and UNIVR dealing with the illusory cues conveyed by the two designs represent a solid point, though, suggestions are solicited to be produced later on this meeting.

3.30pm Plans for the future (review) meeting

-The following dates are sketched:
Oct. 11-13 (best choice for JC), Nov. 1-5, Nov. 8-10, Nov. 15-16
MM will launch a doodle poll as soon as possible

4.00pm Dates of delivery/reporting and content of deliverables/periodic report

- FF reminds that this year a more rigorous scheduling of deliverable dates should be respected. He proposes the following dates:
mid September: advanced drafting of all deliverables
end of September: financial documentation ready (form C's + person/month of all participants)
first half of October: advanced drafting of the periodic report

- YV and FF pass through the titles and content of the deliverables for the second period

- YV calls for a minor re-scheduling of next day, due to temporal constraints of the remote attendants from Europe. In particular, the next day includes possibility to join a seminar at McGill from 12am to 1pm, on augmented reality in simulation of space explorations. All attendants show interest for this opportunity.

The meeting closes at 5.00pm.

Dinner scheduled at 7pm at "Le P'Tit Plateau"

JUN. 10 - The meeting starts at 9.30am

Participants:

McGill: Y. Visell, J. Cooperstock, G. Millet
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AAU: S. Serafin (in teleconference)

9.35am - Discussion on the book deliverable

- YV summarizes the aims and contents of the open book. Conclusions are finally drawn concerning key aspects of the edition:
Editors: FF, YV
List of contents (drawn from the Annex I of the project)
* Introduction: FF and YV lead
* Hardware: VH lead
* Sensing: YV lead
* Feedback: FF and SS lead
* Pseudo-haptics and interaction techniques: AL and MM lead
* Integration and presence: Rolf Nordahl lead

Publisher: Logos-Verlag, or Open publishing line at Springer? SS will investigate possibilities for the latter option
Chapters to be exported to a future Springer book: YV will coordinate this activity, if any

10.15am - Research exchanges

- Recent and current exchanges are listed:
SS reports of: AAU -> INRIA (Luca Turchet); AAU -> UPMC (SS and Kristina Daniliauskaite)
YV reports of: UPMC -> McGill (Nizar Ouarti); INRIA -> McGill (GC); UNIVR -> McGill (Stefano Zambon)

- Possible future exchanges between UNIVR and INRIA are proposed by MM

10.35am Management

- FF updates on current status of the project management. As the consortium already knows, the first payment has arrived beginning of May. The first iteration with the Commission for changing the coordinator is in due course. FF hopes to conclude this process as soon as possible. All participants have nothing to question, and leave the current coordinator to act on behalf of the consortium.

10.50am - AAU Research update

- SS, from remotely, reports on the migration of AAU shoe models from acoustic to force sensing. Three experimental studies based on comparison of user's performances with different feedback modalities during a task are being performed, and their results will be

provided when ready.

- SS leaves the remote connection at 11:05

11.10am - UPMC Research update

- VH reports on newly engineered force actuators containing smaller magnets/components that are ready for delivery, as well as on improvements to the membrane-based actuators, that are yet not ready to be used.

- Since it is of chief interest for the Consortium to have more actuators at hand, FF asks VH to prepare an offer for a small cost-effective mass production of the new force actuators (100 pieces?), to be distributed among beneficiaries by providing from the consortium part the necessary economical support to UPMC to cover costs of the material.

- VH says there may be collapsing with existing patents. He will take care of checking out possible issues in this sense.

- VH reports that there are fair results with the current experiment. The related experimental hypothesis may thus be abandoned.

- SP and FF solicit the creation of kind of installation guidelines, useful to optimally install the actuators in the shoe soles in a way to obtain an as most stable behavior.

The attendants move to the seminar at 11.50am.

1.15pm - Lunch

The meeting starts again at 2pm. Teleconferences are over. The remaining attendants brainstorm on future research.

- FF presents the research activity and interests of Stefano Zambon, who will be visiting McGill from July 2010 to December 2010. The following points are discussed with YV and JC:
  * Modeling and simulating distributed shoe/material contacts as point-wise interactions. Ex.: granular materials against the sole.
  * Implementing such models in multi-core and/or GPU environment-based computing facilities at McGill.
  * Collaborating with GC in the modeling and implementation of distributed interactions between a sole and the aforementioned particle-based fluid model.

- FF solicits ideas for realizing a comparison between tiles and shoes, as prescribed by the project reviewers. Best would seem to match the tactile displacements in the two interfaces, and then compare sensations of simple Poisson-generated granular textures. Such an experiment has a clear counterpart with equivalent tests on perceived roughness by the hands. The problem is now where to perform this comparison: either at McGill or INRIA, or at UNIVR, provided that a second shoe prototype could be delivered to such two places or conversely a pair of tiles of the latest generation could be built at UNIVR. Ways to solve this logistic issue will be discussed shortly after the meeting.

The meeting closes at 16.45