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To cite this version:
Dimitri Bouche, Jean Bresson. Adaptive lookahead planning for performing music composition. The 25th International Conference on Automated Planning and Scheduling (ICAPS), Jun 2015, Jerusalem, Israel. 2015. <hal-01163294>

HAL Id: hal-01163294
https://hal.archives-ouvertes.fr/hal-01163294
Submitted on 12 Jun 2015

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Adaptive lookahead planning for performing music composition

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Context

- Creating music amounts to write (compose) and perform (live)
- Composition can last an indefinite time
- Performance has a timeline defined during composition

Compositional processes that generate or modify musical structures can be integrated in musical objects, and occur during the performance

Adaptive lookahead (dynamic vs. static)

**Dynamic object**
- Likely to be modified while being rendered

**Static object**
- Will never change

Planning of a musical object

- Play-chord
- Play-note
- Note-on
- Note-off

Planning and scheduling operation scheme

**Data structure**

- Object to plan
- Translation
- Editions

**Environment & Compositional Processes**

- Computer-music environment: react to user inputs
- Process tasks: non preemptible, best-effort
- Integrate results in the data structure
- Notify the planner about editions

**Planner**

- Register playing objects
- Store time-windowed plans
- Extract new plans from the data structure according to queries or notifications

**Scheduler**

- Synchronously render plans
- Query the planner for new plans after depletion
- Trigger compositional processes as « tasks »
- Time updates (graphics, callbacks etc.)

**Example**

- Tasks triggering compositional processes
- Results of compositional processes

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