Adaptive lookahead planning for performing music composition
Dimitri Bouche, Jean Bresson

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
Adaptive lookahead planning for performing music composition

Dimitri Bouche – Jean Bresson
UMR 9912 STMS IRCAM-CNRS-UPMC / Paris, France
{bouche,bresson}@ircam.fr

Context

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

Adaptive lookahead (dynamic vs. static)

Dynamic object
Static object
likely to be modified while being rendered
will never change

Planning of a musical object

Planning and scheduling operation scheme

Data structure

Object to plan

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

Scheduler

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

Planner

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

Example

Download OpenMusic: http://repmus.ircam.fr/openmusic/

EFFICAC(e) ANR-13-JS02-0004-01: http://repmus.ircam.fr/efficace/