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B — IS FOR BIRD: A CHINESE FOLKTALE FOR GAME-AUDIO, CHINESE PIPA AND RESYNTHESED SYRINX

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Abstract

B — is for Bird is a duet for Pipa, (a four-stringed Asian lute) and *resynthesized Syrinx* (a system for mimicking birds' vocal anatomy). B's setup involves the acoustic instrument performed alongside a live game-audio system (currently written in Unreal Engine 4), which features a virtual pipa and mechanical birds in a Chinese-style botanical garden. The piece is a collaboration between the author (a composer of interactive music), Yuhe Liu (a pipa player) and Alena Mesárošová / Manuel Ferrer (a 3D-modelling team). The composition navigates a Chinese Folktale nar-

Keywords

Pipa Instrument
Syrinx
Birdsongs
Meta-bird
Game-audio
Modular Synthesizer
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rative at the intersections of the real, the virtual and the augmented. The folktale commences with Hu, a wise woman who takes care of the flowers and birds of an ordinary botanical garden. As the composition progresses, earth and sky merge together into a purple gloom, transforming the garden into an enchanted musical scene. Before dawn, birds, lilies, foliage and trees turn into musical instruments, while Hu plays birdsongs on her virtual pipa born from a butternut squash. The immersive environment is experienced from the viewpoint of an oriole bird, which alongside the pipa instrument, is the main character in the story.
Video: https://vimeo.com/229351488

Fig. 1
Hu and the magic Pipa born from a butternut squash.

NAVIGATING LEVELS, AURAL TYPOLOGIES AND MODES OF INTERACTION

After a brief introductory chapter featuring Hu, the piece is structured in three contrasting scenes working as virtual instruments for aural navigation. The players have to explore each sonic gardens in order to unveil their distinctive audio typomorphologies and focused modes of interaction.

a) *The Whispers' garden*: consists of a giant procedural audio tree, which spawns sonic logograms (Chinese characters) representing whispering phrases as the language and grammar of a sonic poem. It employs phase-vocoder techniques and dynamic audio procedurally triggered as tree branches and nodes sprout.

b) *The Yunluo or Water lilypond garden*: showcases a number of timbrally-tuned gongs mounted in a wooden frame, which emerge from the oriole's interaction with the water-lily flowers and their musical petals.

c) *Zhuangzi's garden*: portrays the performative interplay between an interactive virtual pipa, the real one (originally played by Yuhe Liu) and a number of mechanical birds. Master Zhuang, a 4th century BC Daoist philosopher, and his parables informed this scene. His folktales were often typified as a discussion between imaginary and/or real characters as in this piece. This section has a precomposed audio stem and the real-time instrument-bird counterpoint takes place above it.

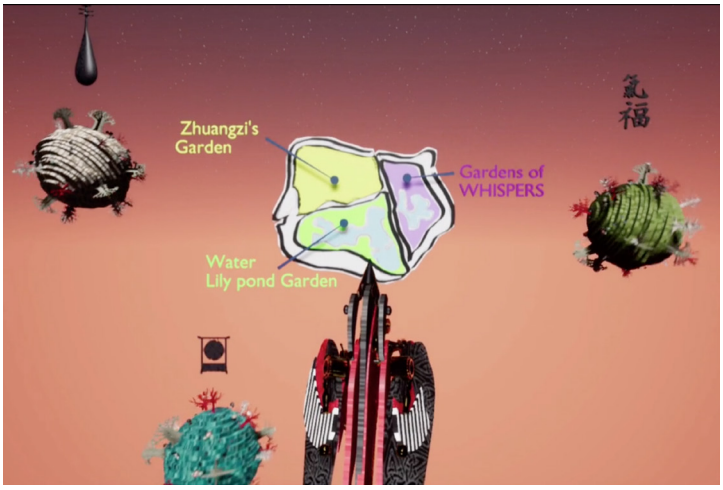

Fig. 2
The interactive garden map (of Chenshan) to access the three aural paths.

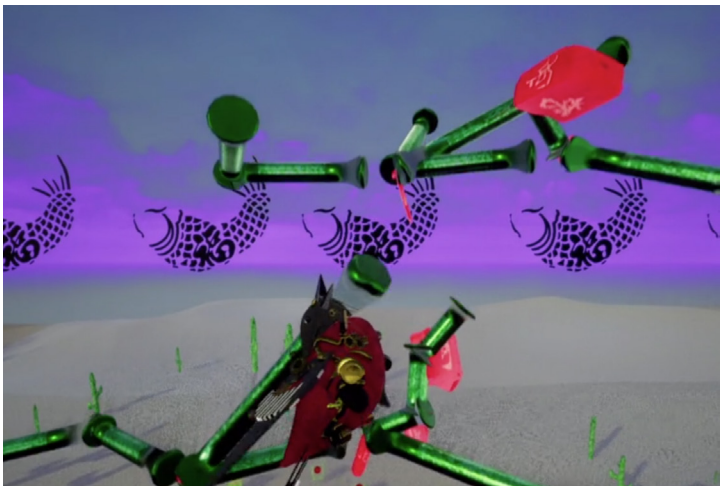

Fig. 3
A procedurally-generated whispers tree spawning Chinese characters as seeds.

Fig. 4
A musical lily pond garden scene.

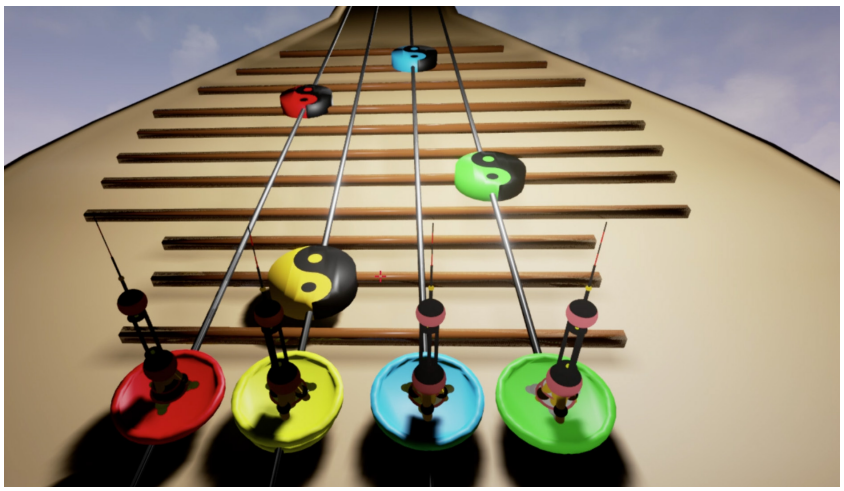

Fig. 5
The interactive guitar-hero like virtual pipa with moving pointers.

COMPOSING THE RESYNTHESIZED SYRINX

Birdsongs and nature have inspired humans and informed musical compositions and other art forms for centuries. Compositionally, the author investigated a number of routes to reconstruct bird's vocal anatomy via synthesis and sampling techniques. Full details about the constructed system are included on a related paper: Climent, R. "B—is for Bird-. 2016. A game-audio musical work for resynthesed syrinx". OuvirOUver Journal. Commission and published by Federal University of Uberlandia, Brazil.

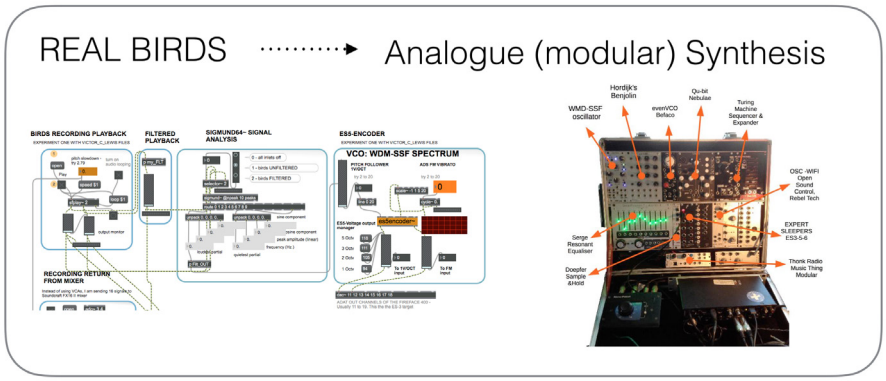

Fig. 6
A real birdsong- to-analogue synthesis translator, using FFT spectral analysis and the Expert Sleepers module to communicate with a purposely-built modular synthesizer.

WRITING FOR PIPA IN COLLABORATION WITH YUHE LIU

The author first came across the plucked string pipa thanks to Luo Chao-Yun (Pipawoman, Taiwan), who back in 2008 performed at the LICA-Mantis Festival, England alongside Tai-chi dancer Chen Wai-kai. However, the pipa materials featured in this piece (both 3D model and transformed sounds) come entirely from Yuhe Liu's collaboration. The instrument was recorded at the NOVARS Research Centre.

Fig. 7
Yuhe Liu's pipa, after being 3D modeled along mechanical birds and musical lilies.

WIDER GAME-AUDIO CONTEXT

The author's game-audio portfolio of musical compositions explores creative expression at the intersections of the Real, the Virtual and the Augmented. It pursues the connections between Modularity, Hybridisation and Extended Realities. Related research projects can be found here: http://game-audio.org

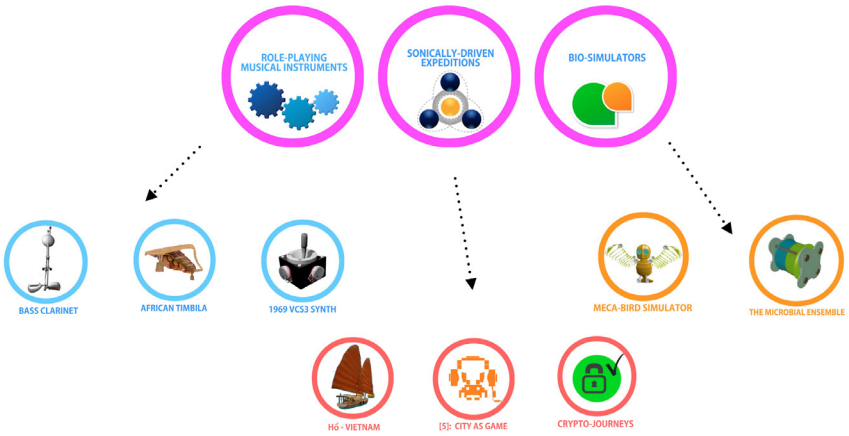

Fig. 8
B is for Bird falls within the Bio simulators typology.

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