

# FuXi: a fish-driven instrument for real-time music performance

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## Description of the FuXi System

FuXi is a New Interface for Music Expression (NIME) and visuals generation based on the behavior of a fish. The system (Fig. 1) is comprised of 1) an aquarium with a fish; 2) a computer vision module including a USB Camera, 3) a visual display of the fish's image juxtaposed by the graphical elements generated by the user, 4) a sound generation module and 5) a set of hardware devices for controlling the system. The musical expression is a combination of the fish movements and decisions taken by the performer in real time, together delivering an audiovisual experience to the audience.

The system is mostly reactive (the performer and system react to fish movement) but limited feedback (from performance to the fish) is also possible by placing mirrors close to the aquarium. The fish tends to change behavior when it sees other fish from its species.

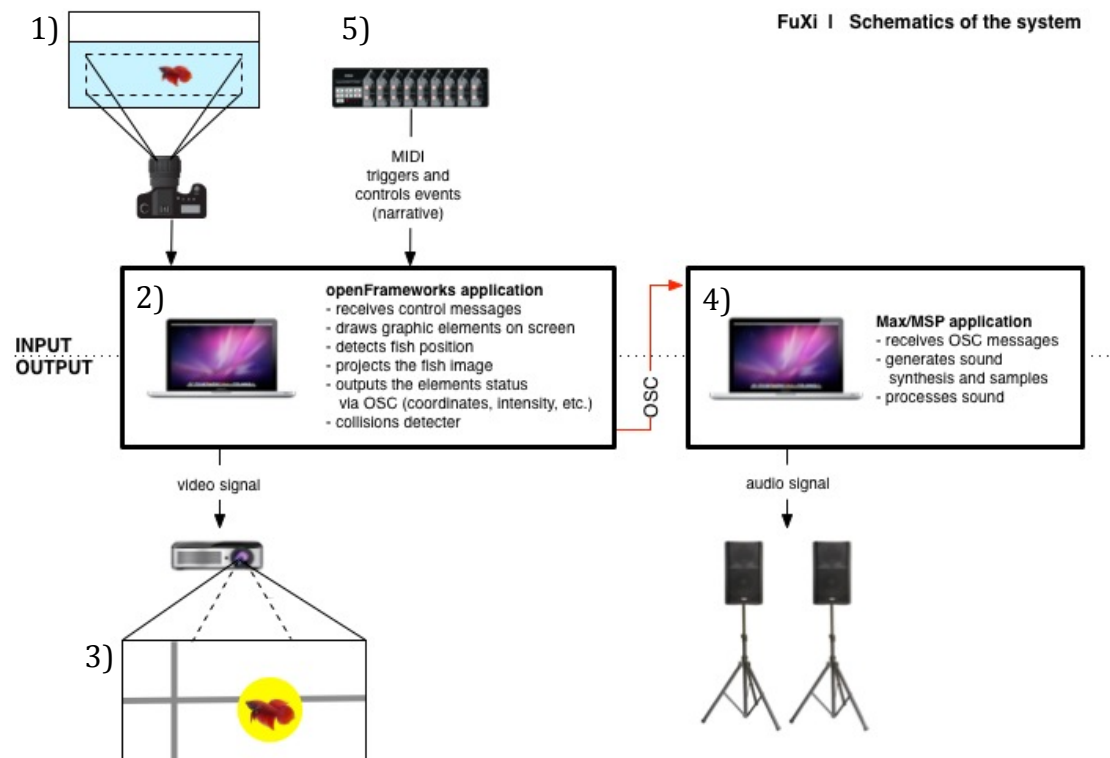


Figure 1 - FuXi System Schematics

## **Performance Concept**

The performance goal is to offer the audience an aesthetically meaningful experience (where sonic and visual elements are in synch), while providing a proof-of-concept of the system capabilities. The artistic concept of the system is grounded on the creation of an audiovisual world inhabited by a living creature: the fish. The performer, by choosing among the different visual elements (backgrounds, living creatures, man-made objects) and their corresponding sounds, defines the world in which the fish is immersed, gradually generating a fantastic audiovisual narrative in which the fish plays a leading role. In this specific piece, the world metamorphoses from a peaceful place to a stressful one, through human intervention over nature. It is an analogy for the human condition, frequently disrupting the natural world.

The system was named FuXi after the culture hero in Chinese mythology credited for the invention of fishing and repopulation of humanity.

The musical aesthetics tends to soundscape composition, electroacoustic and improvised music.

## **Short Biography**

João Cordeiro is the composer, performer and maker of the FuXi system.

João Cordeiro has been developing his artistic, scientific and professional work around the subject of sound, mostly as a researcher, sound designer and musician. He holds a Master degree in Sound Design and a PhD in Science and Technology of the Arts – Computer Music granted by the Catholic University of Portugal. His research interests include soundscapes studies, sonic interaction design, sonification and music performance. Besides Portugal, he has done research in the KTH (Stockholm), Stanford (Palo Alto, CA), QMUL (London) and USJ (Macau).

He is currently an Assistant Professor at the Faculty of Creative Industries in the University of Saint Joseph – Macau and researcher on the Research Centre for Science and Technology of the Arts, Catholic University of Portugal – Porto.

As a musician/composer he has been a member of the Portuguese pop band Houdini Blues, for the last 16 years. On the last five years he started participating in performances of experimental/electronic music, mostly in duo or ensembles. As a sound designer he has produced sound for short and feature films, sound for video games and radio commercials.

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