Fantasy Birds in Yazi’s Dream
Lydia Ayers
Tower 14, Flat 7A, HKUST
Clear Water Bay, Kowloon, Hong Kong
email: layers@cs.ust.hk

Abstract
Yazi’s Dream celebrates the life of Yazi, our first cat. This project uses the dizi, a Chinese transverse flute that often imitates bird songs, to make tremolos for the fantasy birds used in Yazi’s Dream.

1 Introduction: Yazi’s Dream:

Yazi’s Dream celebrates the life of our cat. The recorded birds represent the birds Yazi watched and tried to talk to through the window. Synthesized tremolos on the dizi, a Chinese bamboo membrane flute (see Figure 1), represent Yazi’s bird fantasies. Yazi’s panting breath becomes the wind whistling in the shadows of a mountaintop. Muyu, buddha gongs and qing (see Figure 2) play a parade of memories honoring her life.

2 The Additive Synthesis Instrument:

Inspired by the bird songs that dizi performers often imitate, the new additive synthesis design uses up to 30 harmonics (see Figure 3), each with slight random inharmonicity, vibrato, amplitude interpolation, slow and fast amplitude noise, and a very small amount of filtered breath noise (Ayers 2005). The large random variation in the spectral amplitudes better simulates the instability of the dizi timbre, and makes the tones sound more lifelike than wavetable synthesis does (see Figure 4). Frequency and amplitude modulation for each of the harmonics of a single signal make dizi tremolos for Yazi’s fantasy birds.

3 Fitting the Model into the Piece:

In the ‘Looking at Birds’ section of Yazi’s Dream, dizi fantasy birds dialog with recorded bird sounds. Once we completed the dizi tremolo model, it was quite interesting to vary it to produce effects more like birds than dizi sounds. For example, it is possible to slide from one dizi pitch to another by moving the fingers slowly across the open holes, but it is not possible to slide a tremolo across a large interval. Joining dizi sliding tremolos to other notes produces bird melody fragments. Figure 5 shows a dialog among the cat, the real birds and the dizi sliding tremolos and pitch bend representing the fantasy birds. The dialog among the cat, the birds and the dizi returns at the end of the piece, when the cat sound is stretched, lowered and granulated.

References: