

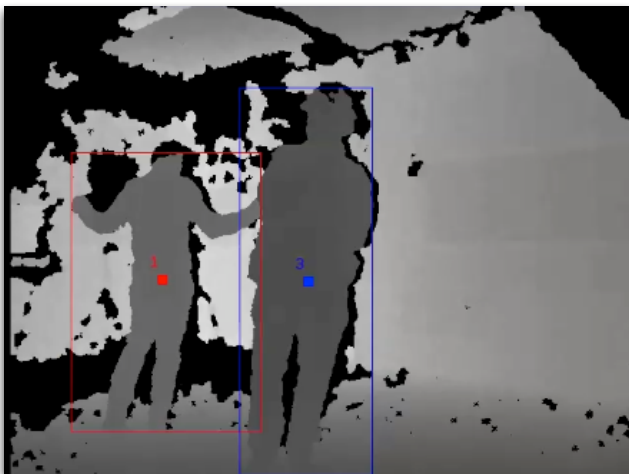
# The Melody Triangle

## prediction and predictability in music

One of the noticable features of most sorts of music is that it involves patterns in time—a repeating bass line, the cycle of harmonies in a 12 bar blues, a melodic theme that is repeated, perhaps in slightly different forms, at different pitches or at different speeds, and so on. One of the tools available to a composer or performer is to play with his or her audience's expectations, by setting up patterns that seem more or less predictable, sometimes doing what listeners expect, and sometimes doing surprising things.

Our work on information dynamics involves studying several different kinds of predictability in musical patterns, how we as human listeners might perceive these, and how they shape or affect the listening experience. For example, if the music is very easy to predict after a short period of listening, are we more likely to find it boring? Is there a link between difficulty in prediction and musical tension?

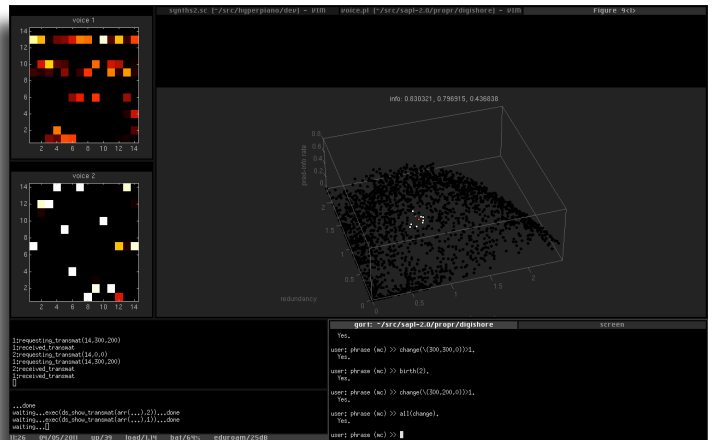
This installation allows people to explore a space of melodic and rhythmical patterns organised by how predictable they are, at least according to a simple model of how one might guess the next musical event given the previous one. Each person in the space generates one instrumental line, at a certain speed and using a certain pitch range. By cooperating with other people, multilayered musical textures can be created.



A tracker's eye view: the Kinect camera sees the distance to each object. It finds anything that looks like a body and sends it's position in 3D to the rest of the system.

Henrik Ekeus and Samer Abdallah  
Centre for Digital Music,  
Queen Mary University of London.

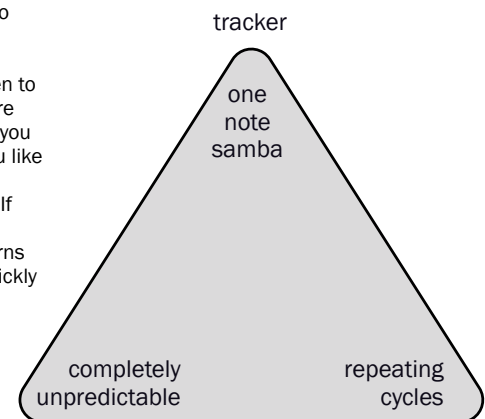
British Science Festival, Bradford,  
14th September 2011.



The computer finds a pattern of notes (represented by the square images on the left) corresponding to where each person is in a triangular space (on the right).

As you enter the space, the system will start generating an instrumental line or voice. The loudness of your voice is linked to your height, so if you crouch, you will become quiet. The active space is triangular, with each corner corresponding to three different extremes of predictability/unpredictability. As you move around, the system will generate patterns corresponding to where you are in the space. With other people in the space, you can cooperate to create polyhonic textures, for example, you could lay down a predictable repeating bass line while your companion creates a freer melodic line on the off-beats.

**Tip** It's best not to move around too quickly, to give yourself time listen to the pattern you are generating. Then you can decide if you like it or want to try somewhere else. If you move around quickly, the patterns will change so quickly that there will effectively be no pattern.



## Controls

Control gestures are made pushing out or pulling in your left and right arms rapidly, either separately or together, while facing the Kinect motion tracker.

### left arm right arm meaning

in→out	static in	double tempo
out→in	static in	halve tempo
static in	in→out	triple tempo
static in	out→in	one-third tempo
in→out	static out	shift by half-beat
in→out	in→out	change instrument
out→in	out→in	reset tempo



double tempo



half tempo



triple tempo



one third tempo



change instrument



shift to off-beat



reset tempo