

***Argos Pansonos.***  
(or the meaning of *k-means*)

Michèl Koenders

A composition for Piano, Computer and 3D Surround Audio System.

The title is from Greek mythology: the Giant Argos (or Argus) Panoptes, guardian of the heifer-nymph Io. According to this mythology he had a hundred eyes looking in every direction (pan-optes), which made him an ideal, "all-seeing" watchman in the eye of Hera. Unfortunately however, he didn't succeed in his role as her servant and watchman. The god Zeus sent Hermes disguised as a shepherd who, using spoken charms succeeded in closing all of Argos' eyes. He fell asleep and Hermes then hit him with a stone and stole Io.

Argos as a name is widely used in situations relating to alertness and the role of watchman and caretaker. As an image it stands for wakeful alertness. But instead of relying on his eyes I imagined an Argos with many ears: capable of excellent and wakeful hearing in all directions. I used this image of Argos the watchman as a synonym for spatial hearing in my surround loudspeaker setting.

*Argos Pansonos* is the first (algorithmic) composition I have created with the newly written composition program CACE4 -Computer Assisted Composition Environment 4. (To be more precise: it is the fourth version of a composition program written in Lisp: original dated some were around 1993 as CAC I.) As I often do in my compositions, I take a mathematical approach for solving a specific problem and use it as a certain kind of idea and 'musical theme' in my compositions. 'Argos' is an algorithmic composition where the central algorithm is the k-means statistical algorithm, from the family of Hierarchical Cluster Techniques. A large family of algorithms used for selecting and clustering data into several groups with shared features and characteristics. By making use of several sources of data and selecting and slightly altering (scaling) them, I was able to transcribe the result of the mathematical output into a score, playable by a human being.

As a Piano composition accompanied with live use of a computer, *Argos Pansonos* moves between passages more based on harmonics and timbre alterations by the computer, who acts as an invisible second 'player', and more rhythmical 'streams' as a single movement. By using close-microphone techniques (and making use of a Surround Sound PA-system) we can utilize 'tiny' and soft sounds played inside the piano. This in combination with DSP alters and enriches the sound palette I use as a composer. As a kind of contrast and musical counterpoint I do not only use the inside of the piano; rhythmical patterns are used as melodic lines or as 'fluid' streams as they are played on the keyboard, acting as 'cadenza's' and interludes in the composition.

Recording, sound processing, editing and postprocessing: Michèl Koenders.  
Has been performed by Laurens de Boer.

Sydney, May 2013

140820