

Drum Circle

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Extended Abstract

Machines are often displacers. In factories, they displace human workers; in construction projects, they displace natural objects to make way for buildings and roads; in communication, they displace previous means of social interaction. Machines are often big and powerful. Such attributes are necessary in order to move heavy and/or large objects in order to reshape the landscape. Some may interpret these activities as machines *overpowering* parts of the land. Machines are often noisy. This quality, in part, defines the sonic identity of contemporary city life and has been reflected in art, for example in George Antheil's composition *Ballet Mécanique* (1924).

Drum Circle challenges the idea of machines as displacers that are big, powerful, and noisy. Here, the robots, CADI (modular percussion arms) and MADI (a snare drum with fifteen strikers), depart from their familiar man-made surroundings and venture into the woods of Virginia. The robots tuck themselves peacefully into the landscape, arranging themselves on top of logs and covering themselves with leaves. Once comfortable, they sonify their physical surroundings by playing a diverse percussion ensemble that includes found nearby objects, such as beer bottles, as well as more traditional instruments such as woodblocks, metal bowls and drums. In some sense, this contextualization of machine in nature strikes us as a juxtaposition of unlike things. Indeed, machine / nature interactions often result in dramatic transformations where nature is displaced and transformed into some unlike object(s) of human will. *Drum Circle* is not such a story: here, we see and hear robots not as imperialist amalgams of electromagnets and plastic, but rather as agents that are governed by the kinetic and acoustic characteristics of our¹ physical world that can cooperatively interact and coexist with surrounding objects. Their stature is small; their movements are subtle. Their materials are translucent, allowing images of their surroundings to pass through their bodies in recognizable but altered ways. Their utterances are quiet and, at times, sparse in order to allow us to hear nature's responses. They communicate in the spirit of harmony, not hegemony. They present themselves in a way that invites us to question our assumptions about the line between nature and machine.

Musically, the relationship between machine and nature in *Drum Circle* is one of collaboration: a mechanically regular input is filtered through a system characterized by natural components, physical forces, and pseudo-randomness to produce a temporal sequence that reflects a synthesis of these various elements. The piece begins with a sequence of falling rocks that is the product of mechanical regularity and physical randomness. One of the robotic percussion arms is attached to a box, filled with small rocks, with a hole on the bottom of it. The arm shakes the box at regular intervals, which reconfigures the rocks and allows some to fall through the hole. The rocks strike a sensor-equipped metal plate and the temporal intervals between these strikes are stored in a software program. The resultant rhythm from this sequence of intervals is iteratively transformed rhythmically and orchestrationally throughout sections of the work, thus this statement and its means of production are conceptually and musically foundational. Over the course of the work, these musical ideas are stated, absorbed, re-interpreted and stated again to create a cyclic yet developing story.

Drum Circle was composed in 2010 by Scott Barton and Steven Kemper for the robotic instruments MADI (multi-Mallet Automatic Drumming Instrument), CADI (Configurable Automatic Drumming Instrument) and assorted found percussion instruments. MADI and CADI were designed and built by Expressive Machines

¹ 'Our' in a shared sense: not a possessive one.

Musical Instruments (EMMI), founded by Troy Rogers, Steven Kemper and Scott Barton. A video of the work is featured on the 2011 EcoSono DVD *Agents Against Agency*.