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Jazz as a vehicle for improved Computer Human Interaction

Improvisation works the same in any form of creative collaboration. There are the folks that lay down the framework and the folks that create a flowing expression on top of that framework. The magic comes when those collaborators begin to switch roles on the fly and stretch the creative envelope. A third entity emerges that is greater than the parts. You can call it ‘vibe’ or ‘flow state’ or any number of things, but once experienced, it is undeniable and very special. Growing up, I thought I was going to take after my father and become a jazz musician. I started jazz trumpet and guitar very early and my favorite part of the experience was playing improvised solos with a band. As I got older, I worked as a studio technician and producer. When working heavily with computers as production tool, one develops a bit of a distain for how cold, dry, and dull the electronically created music can be. I always hoped to have a computer or program that could have the true swing and feel of great jazz band. Programs have gotten significantly better over the years at simulating human imperfections, but it is going to take powerful artificial intelligence to have a truly creative and soulful robotic musician. I discovered an article by Jodi Heckel on phys.org that gave me a tremendous amount of hope that this is going to be possible very soon. The article also merged my interests in computing, especially digital music production, with soulful jazz improvisation.
The article details a project called MUSICA (MUSical Improvising Collaborative Agent). The project, led by Ben Grosser at the University of Illinois, ‘aims to ‘enable symmetric communication between people and computers,’ where computers are collaborators just like people are (Heckel). The HCI/d lecture focused primarily on the form and function of interfaces a user would see when operating a computer or device (Onesti). It makes sense to focus on these areas because currently computers are basically tools for doing something. I am very curious about what happens when computers stop being a tool, and become true collaborators. When the world of artificial intelligence hits this level, HCI/d will be turned on its head. The computer will interact with the user every bit as much as the user interacts with it, and in the same way. The icon model, with representations of objects that remind the user of what a ‘click’ will do, with be replaced with an actual conversation, complete with hand gestures, intentions, and even sarcasm. With jazz as a vehicle, MUSICA, aims to look at human/computer communication ‘from a different perspective than linguistically,’ (Heckel) and perhaps learn something more nuanced about how computers and humans can collaborate together. By studying communication with ‘feel’ at its core instead of ‘cognitive interaction,’ insights will certainly be gained. The robotic musician is developed very much like an actual musician. A database of great improvisers is studied and learned to be compared, contrasted, and emulated. The approach to translating this input music into data ‘s to computationally analyze these solos using ‘image schema,’ a way that people understand their world using special concepts’ (Heckel). The next step in building a great robotic improviser is developing a system that can analyze the music being played around it. Once the beat and harmony are understood, the computer can go back to its
experience of learning great solos and understand what comes next. The computer understands what a great soloist would do in a specific situation and performs similar music.

Even the developers of this technology admit that their robotic artist will probably only perform at the level of a high school student, not an all-time great. However, the future implications in this area are obvious. The goal of AI research is to engineer computers or robots that are virtually indistinguishable from humans. A computer that can ‘vibe’ on some jazz with a group of other musicians is about as human as it gets. An artificial mind with that level of sophistication could do almost anything else a human could do, in an extremely natural way. Faster computers and development based on this type of research will drastically change the way human beings interact with machines. Today people get a kick out of asking Apple’s Siri to put a dentist appointment on their schedule. Down the road, AI grown from the MUSICA model could do any number of incredibly power things. For example, a future Siri incarnation could anticipate health issues based on the user’s voice and interactions and schedule the specific doctor or tests needed for that person. Computers will be true partners and collaborators, with special insights into our lives and personalities.
Works Cited
