

## Cort Lippe

### Program Notes

*Duo for Vibraphone and Computer* (2015) was adapted from an earlier composition of mine entitled *Duo for Tenor Steel Pan and Computer*, composed in 2011. The vibraphone version was composed for Patti Cudd and premiered by her at New York University's *Interactive Arts Performance Series* in February of 2015.

The computer part was created at the Hiller Computer Music Studios of the University at Buffalo, New York, using the software Max/MSP. The digital synthesis algorithms focus on various kinds of analysis/resynthesis, along with delay/feedback, spatialization, frequency shifting, frequency modulation synthesis, harmonization, and sample playback. Technically, the computer tracks parameters of the vibraphone performance using Miller Puckette's *sigmund~* object, which does an analysis of the incoming vibraphone signal and gives out information as to when the vibraphone is struck, how loud it is struck, and the pitch and timbre of each strike (including details about relative loudness across the frequency range in 40 independent frequency bands). All this information, from larger scale rhythmic and phrase tracking of pitches and attacks, down to micro-level frequency band information, is used to continuously influence and manipulate the computer sound output by directly affecting digital synthesis and compositional algorithms in real-time, giving the performer an active role in shaping all of the computer output. The intent is to create a certain degree of intimacy and interactivity between the performer and the computer, in which the performer has the potential to influence the computer output based on aspects of the musical expressivity of his/her interpretation of the score. The instrument/computer relationship moves on a continuum between the poles of an extended solo and a duo. Musically, the computer part is at times not separate from the vibraphone part, and serves to amplify the vibraphone in multiple dimensions and directions; while at the other extreme of the continuum, the computer part has its own independent musical voice. These solo/duo relationships exist simultaneously; yet have a certain level of musical and technical ambiguity. Much like chamber music playing, in which individual expressivity sometimes is meant to serve the whole and at other times has a fundamental individual influence on the entire ensemble; the musical relationships between the performer and computer are fundamental to the musical results.

The piece is recorded on Patti Cudd's solo CD entitled *EOS* on Innova Records.