ABSTRACT

What Counts as Matter: Computation and Resonant Media investigates the relationship between matter and computation from a philosophical and socio-historical perspective. Its theoretical framework sets the basis for my media art practice and composition techniques as demonstrated through media examples, sound synthesis techniques, film scores, performance and art installations.

The argument of the dissertation departs from the ongoing developments in new materialist thinking and addresses the lack of critical engagement with the digital as a new kind of materiality. By aligning computation to the automation of algebraic reasoning, the dissertation argues for a more general and generous understanding of computation that goes beyond its numerical and algorithmic implementation. The dissertation considers the possibility that, if algebra is the instrumentalization of symbolic relationalities, then instrument-building is a form of direct engagement with the relationality of matter: an algebra in *materio* that, under certain conditions, can be considered computational. Focusing on key moments in the histories of algebra and tonality, the dissertation shows how instrument-building produced both new scientific epistemologies and insights into the composition of matter, to suggest that the present moment may be in need for a similar sonic assessment of the computational.

Focusing on the relation between instrument and matter, the dissertation further argues that the concept of resonance serves both the relational and the substantive claims of new materialist discourse by operating across media, materialities and scales of magnitude. By situating resonance materially and historically, the dissertation also avoids displacing its specificity through general descriptions of matter's agency. What make

resonance a fertile concept, is that it carries the unique property of re-implicating the human in a feedback process as a resonant body, whose judgment is called upon in a form of *calibration*: like tuning without aiming for consonance. Resonance in this sense sets itself apart from the more amorphous state of a vibrant matter. As such, I also argue that resonance is best understood as a "problem" expressed historically through its (re-)solutions. From this view, resonance offers new directions and untapped possibilities for materialist thinking and the sharpening of its critical discourse.

I complement the theoretical component of the dissertation with my own artistic works, experiments and compositions that further motivate new understandings of matter by illustrating the unique affordances sound and real-time computational practices have. These material meanings are particularly pertinent to sound and computational processes, since both are often misidentified or misperceived as being immaterial due to their intangibility, which ultimately invite the reader to consider *materially* the notions of resonance and media, through computation, as "resonant media."