

A key proposition of computer music and signal processing is that ‘everything’s a filter’. The human throat, a musical instrument, an algorithm — anything, to paraphrase Julius Smith, that modifies sound in some way. Filtering is also considered a central cultural technique within media studies. But where did the concept of ‘filtering’ sound and other signals come from? In her talk, Mara Mills draws on the manuscripts of the engineer George Campbell, who between 1899 and 1903 developed electrical filtering as an unexpected by-product of his work on ‘loading coils’ — devices inserted along telephone wires to extend the distance that a signal could be carried in the years before electronic amplification was possible. Mills situates Campbell’s filter within the context of several decades of public and engineering dreams of ‘long distance’ to show that filtering resulted from attempts to harness the ‘hearing loss’ induced by wild disturbances of distortion, noise, and interference from other wires in the burgeoning electroscape. The talk will also address the semantic and technical shifts that filtering underwent as it became electroacoustic: it henceforth referred to the separation of signal components, the removal of unwanted components, and various ways of shaping or processing a signal.

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Lecture Series Models: A model can be an object of admiration, a miniature or a prototype, an abstracted phenomenon or applied theory, a literary text — practically anything from a human body on a catwalk to a mathematical description of a system. It can elicit desire, provide understanding, guide action or thought. Despite the polysemy of the term, models across disciplines and fields share a fundamental characteristic: their effect depends on a specific relational quality. A model is always a model of or for something else, and the relation is reductive insofar as it is selective and considers only certain aspects of both object and model. Critical discussions of models often revolve around their restrictive function. And yet models are less prescriptive and more ambiguous than codified rules or norms. What is the critical purchase of models and how does their generative potential relate to their constitutive reduction? What are the stakes in decreasing or increasing, altering or proliferating the reductiveness of models? How can one work with and on models in a creative, productive manner without disavowing power asymmetries and their exclusionary or limiting effects?

# Mara Mills

## ‘Everything is a Filter’?

### The Electrical Filter Becomes Tool and Model (1903–15)

