

1. The discovery and invention of the triode vacuum tube was integral to the development of amplified audio technology. (King, 1923)
2. However, there are many limitations to vacuum tube technology including the large size, heat conduction, fragility, and power requirements which created a need for new technology. The invention of semiconductors (transistors) for amplification was a breakthrough in electronics that made a lot of technology possible that wasn't before. (Bardeen, 1948; Fink, 1956, Guarnieri 2012, 2017, 2018)
3. Although semiconductors solved a lot of the big problems of vacuum tube technology, it left out some of the important benefits which were primarily felt by the music community. (Barbour, 1998; Guarnieri 2012, 2017, 2018; Hamm, 1973; Moe, 1960; Qiu, 2009; Symons, 1998)
4. There have been some studies on digital modelling of vacuum tube audio technology that have had some success, but there still has not been any comprehensive solution. (Macak, 2011; Pakarinen, 2009)
5. With modern design processes like design thinking and human centered design, there could be other solutions that have not been considered. (Clarke, 2020; Norman, 2013)
6. The purpose of this study is to examine the ways in which design paradigms in audio electronics arose historically, use this information to critique and examine current designs and their limitations, and understand how to design efficient but culturally relevant technology.