

LIVING ROOM ORCHESTRA:
DESIGNING EMBEDDED FURNITURE AS A FAMILY OF ELECTRONIC
MUSICAL INSTRUMENTS

Musical Chairs is a project that explores ways to bring more music and sound art into people's homes in an unobtrusive manner. In a world of embeddable technologies and Internets of Things, the home is getting increasingly "smarter" and not all things are as they once seemed--a refrigerator can tell you the weather, a smart speaker can order a dollhouse. By embedding musicality in everyday home objects, performable sonic beauty can be all around without requiring any dedicated space to hold instruments. One no longer requires a grand piano taking up space in order to host a Salon.

This dissertation discusses the author's philosophies on the benefits of such a paradigm, and provides four examples of how this could be implemented in common household furniture pieces. *Musical Chairs* consists of a set of hand-crafted living room furniture: an ottoman, wingback-style armchair, coffee table, and end table. All contain embedded sensing electronics that control custom synthesis software which are connected to loudspeakers built into the furniture. Each piece has its own interface developed specifically for the type of furniture and how it is traditionally used. The sound design is conceived to work in tandem with the physical interface and also to create distinct timbral voices for each furniture/instrument. These pieces have been shown as art installations and conference demos as a basic living room configuration, letting audiences play seemingly mundane furniture in a musical ensemble.