



MIE498H1: Research Thesis 2025-2026

Supervisor	Mark Chignell
Supervisor email	chignell@mie.utoronto.ca
Number of Positions	3
Open to	Mechanical and Industrial Engineering Students
Term Offered	Full-year
Research Area	Human Factors
Research Topic	An Old-Time Radio Providing Music Therapy

Project Description

Behavioural and psychological symptoms of dementia (BPSD), sometimes referred to as “problem behaviours”, are a major concern in dementia care. Music therapy is one of the few non-pharmacological methods that has been found to be helpful in dealing with problem behaviours. However, music therapy is labour-intensive, and the goal of the CHUMMY project is to make it easier and more efficient to provide music therapy. CHUMMY is a retro-inspired radio system that streams curated old-time audio content (e.g., 1950s rock and roll, big band music) across 12 themed channels. Designed for older adults living in long-term care facilities, like other forms of music therapy, CHUMMY aims to boost emotional well-being through nostalgia and to also calm people down when they are exhibiting problem behaviours. In this project, students will start with designing and implementing a web-based dashboard that connects to each user’s CHUMMY radio. This will also allow family and staff to create playlists and rules for how CHUMMY should respond in different situations. Students also need to participate in brainstorming sessions with selected stakeholders in long-term care to identify features and designs that are senior-friendly and emotionally engaging. They will then develop upload and sharing features for family members to send personalized recordings (e.g., messages from grandchildren). Later in the project, students will carry out usability testing with long-term care residents and family members to evaluate the system’s impact on connectivity and revise it accordingly, subject to obtaining the REB ethics approval needed for this work. This project provides valuable experience in front-end and back-end development, user-centered design, user evaluation, and technology for social connection in elder care settings.

Additional Information	N/A
Application Instructions	Please submit CV, unofficial transcript and statement of interest to chignell@mie.utoronto.ca