

Collaborative Research: FW-HTF-R: Toward an Ecosystem of Artificial-intelligence-powered Music Production (TEAMuP)

Public Abstract

This project builds the foundations of a new ecosystem for music production to empower future musicians to better leverage Artificial Intelligence (AI) tools in the creation, performance, and dissemination of their music, while also accelerating audio AI research. This involves the creation of both an open-access software framework enabling musicians and researchers to collaborate in the development and use of ever-better AI-powered tools for music creation, and a set of initiatives to enable a critical mass of musicians to use these tools in transformative ways. Musicians are expected to use these tools to produce lower-cost, higher-quality music products, which meet growing demand for digital music content for videos, websites, advertising, audio recordings, and new forms of music products. Enabling musicians to be more self-sufficient in their music creation has the potential to increase the number of musically talented individuals that will be able to make a living with their art, especially from currently under-represented populations. To enable growing musicians to make full use of AI tools, a set of innovative learning experiences to acquire the needed mindsets and skills will be developed and field tested in a 2-semester course for students with music interests and a “Summer Camp” for pre-college under-represented youth, along with the creation of online instructional materials to support specific learning experiences in a variety of settings.

The project involves complementary and synergistic steps, undertaken by a project team with complementary disciplinary expertise in music, audio-engineering, AI, learning sciences/ education, business/ entrepreneurship, ethics, and inclusion. This include the development of a prototype of a proposed framework to enable (a) audio AI researchers to easily deploy their new AI models into the free and open-source digital audio platform audacity, and at the same; and (b) musicians who use these AI tools to share their music productions with AI researchers so they can refine their models. Interviews and surveys will be conducted in parallel, with diverse musicians, to better understand key factors that may affect their adoption of AI music production tools and how those tools may transform their work, as well as the implications of the pandemic and other barriers that may be experienced by under-represented populations more specifically. The project works to accelerate future research on AI applications to music and audio by providing an easier way to test and refine AI-models and tools for music production. The project will also generate a better understanding of factors that may affect musicians' adoption and transformative use of AI in their work – which could be generalized to other occupations at the human-technology frontier. Finally, it will develop pedagogical principles and practices that can inform the design of effective educational interventions to better prepare future musicians and other domain experts to leverage technology.