

Air Guitar  
(Technical Report)

AI Music Assistants: Cool Tool or Career Takeover?  
(STS Research Paper)

An Undergraduate Thesis Portfolio  
Presented to the Faculty of the  
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by

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## **Preface**

Emerging technologies such as handheld electronics and artificial intelligence (AI) software offer new possibilities in music composition, production, performance, distribution, and consumption.

How can a working air guitar be developed? The stringless air guitar offers players the advantages of playing a physical guitar without finger strain, a smaller form factor for portability, and compatibility with headphones for privacy. The research team developed a working air guitar. A distance sensor and mobile phone application simulate the fret and strings, an accelerometer enables strumming, and a myRIO microcontroller processes inputs and output audio.

How are musicians reacting to AI? Musicians's responses to AI may indicate how people in other creative fields may respond to it. AI may threaten some musicians' jobs, but musicians typically find ways to use AI as a music tool. Musicians have incorporated AI music composers into production. AI developers and others in business are also involved. AI composition tools parallel analog synthesizers in their function and influence on the music community. Musicians will need to adapt, and musicians' unions should prepare for socioeconomic impacts of AI.

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