

Neural Networks to Assist Music Composition
(Technical Report)

The Controversy over Social Media Recommendation Algorithms
(STS Research Paper)

An Undergraduate Thesis Portfolio
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by

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Preface

Machine learning and A.I. are increasingly used in all fields, but they have much potential for misuse. How can software use A.I. and machine-learning algorithms to benefit its users?

When writing music, new composers can have trouble expanding their ideas into a cohesive piece. This program, using Machine Learning and AI, provides composers suggestions on how to complete parts of a piece based on a database of music. The program works by analyzing features of a database of music, such as chord progressions, instrument usage, and song structure. Then, given the section of music that the composer has created, the program would suggest continuations of the material, such as contrasting sections or new chords, not writing the song for the composer, but giving the composer potential options on where to take the song. This program could function as a teaching tool for new composers, as well as speeding up the composing process.

The algorithms that make social media companies such as Facebook and YouTube profitable are controversial. Warning that social media can propagate bias, compromise national security, cultivate extremism, isolation, and induce compulsive behavior, critics in the U.S. seek federal regulation of social media. To avoid regulation, social media corporations appeal to free speech, exercise limited self-regulation, and cite user experience.

List of Contents

1. Technical Report: Neural Networks to Assist Music Composition
2. Sociotechnical Research Paper: The Controversy over Social Media Recommendation Algorithms
3. Prospectus