Chapter 4
Bias in AI Algorithms and Its Impact on Musical Diversity

Saroj Sandeep Phalke
http://orcid.org/0009-0001-2251-7882
Vishwakarma Institute of Information Technology, India

Gitanjali Shinde
http://orcid.org/0000-0001-6623-8722
Vishwakarma Institute of Technology, Pune, India

Grishma Bobhate
http://orcid.org/0009-0007-7351-8723
Vishwakarma Institute of Technology, Pune, India

Poonam Railkar
Smt Kashibai Navale College of Engineering, Vadgaon, India

Haribhau R. Bhapkar
Central University of Kashmir Green Campus, Ganderbal, India

Sonal Fatangare
http://orcid.org/0009-0005-1185-8699
Vishwakarma Institute of Technology, Pune, India

ABSTRACT

Artificial intelligence (AI) is transforming music creation, distribution, and discovery, offering new opportunities but also reinforcing bias. When trained on datasets dominated by specific genres or demographics, AI systems often amplify mainstream trends while marginalizing niche artists and underrepresented communities. This chapter explores how such bias emerges through skewed data and algorithmic design, and how it narrows musical diversity by favoring "safe" and commercially viable outputs. Case studies, including the EU's Fair MusE project, reveal the impact on fairness and cultural representation. Responses such as diversity-aware algorithms, enriched datasets, and transparent systems are examined alongside ethical and policy concerns. The chapter concludes that sustaining musical diversity in the AI

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era demands accountability, innovation, and collaboration between technologists, artists, and regulators to ensure technology amplifies rather than diminishes global musical expression.

1.INTRODUCTION

1.1Background,Motivation,andRationale

The music industry is undergoing a profound transformation, driven by the rapid and pervasive integration of artificial intelligence. This technological shift, which encompasses a wide range of applications from personalized recommendations to automated composition, is fundamentally reshaping how music is created, distributed, and consumed. When someone opens Spotify, Apple Music, or YouTube, the tracks they hear are usually chosen by AI systems (Chen et al., 2024). Similarly, experimental platforms now allow AI to compose melodies or even full tracks with minimal human input (Pricop et al., 2024).

This is not only a cultural change but also a massive economic one. Reports valued the global AI in music market at roughly USD 3.9 billion in 2023, and some forecasts predict it could climb to around USD 38.7 billion by 2033. Much of this growth is tied to streaming services, where AI recommendation systems already account for nearly half of the sector's revenue (Civit et al., 2022).However, focusing only on market numbers gives a partial picture. What is more interesting and also more concerning is how these systems subtly shape what we hear. AI is not a neutral referee. The way it recommends music depends on data from the past (such as user listening histories and sales figures) and the commercial goals of the companies that build these systems (Zhang et al., 2025; Chen et al., 2024).

As a result, AI often amplifies existing biases: the most popular artists get pushed further into the spotlight, while less mainstream voices, whether niche genres or artists from underrepresented cultures, may remain invisible (Zhang et al., 2025). In other words, instead of expanding musical horizons, AI may actually narrow them (Chen et al., 2024).

The motivation for this study is to highlight that AI in music should not be viewed as just another technical tool. It has cultural power. In earlier decades, radio DJs, music critics, and even word of mouth shaped people's exposure to new artists. Now, algorithmic playlists quietly take on that role (Chen et al., 2024). Every time a listener opens an app and presses play, the system decides what comes next. These invisible decisions ripple outward affecting artists careers, shaping industry trends, and influencing cultural memory itself. This is why examining bias in these systems is more than a technical necessity; it is a cultural responsibility (Civit et al., 2022).