Chapter 9
Integrating Organizational and Social Network Theories to Mitigate Racial Bias in Facial Recognition Technology

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ABSTRACT

Facial recognition technology (FRT), though a powerful tool for identification and surveillance, consistently demonstrates racial bias, disproportionately misidentifying individuals of color. This chapter integrates organizational and social network theories to address these biases. Drawing on theories such as Equity Theory, General Adaptation Syndrome, Minority Stress Model, and Terror Management Theory, it explores the psychological, social, and ethical effects on marginalized communities. Procedural Justice Theory, Stakeholder Theory, and Technological Determinism highlight how organizational practices contribute to bias, while Ethics of Care and Distributive Justice emphasize the responsibility to design fair systems. The chapter calls for comprehensive reforms in FRT development, focusing on fairness, equity, and the well-being of all stakeholders.

INTRODUCTION

As facial recognition technology (FRT) becomes increasingly integrated into law enforcement, commercial, and governmental sectors, its accuracy, and fairness concerns have surged. FRT systems have been consistently shown to misidentify individuals of color at a disproportionately higher rate compared to white individuals, leading to serious consequences such as wrongful arrests, heightened surveillance, and increasing public distrust in technological systems (Buolamwini & Gebru, 2018). These errors are not simply technical glitches; they reflect underlying systemic issues within the design and implementation of technology, where racial bias is often unconsciously embedded into algorithms and processes (Benjamin, 2019). Understanding and addressing these issues requires a multifaceted approach, incorporating organizational, social network, and ethical theories to illuminate and mitigate racial bias in FRT.

This chapter will explore the implications of racial bias in FRT through the lenses of organizational and social network theories. Equity Theory and Distributive Justice are particularly valuable in analyzing the inherent inequities marginalized groups experience when subjected to biased FRT systems. Equity Theory suggests that individuals expect fairness in social exchanges, and when FRT disproportionately misidentifies people of color, it violates this expectation of fair treatment (Adams, 1965). Similarly, Rawls' (1971) theory of Distributive Justice underscores the ethical responsibility to protect the most vulnerable members of society by ensuring that technological systems do not unfairly burden marginalized populations. Both theories advocate for developing FRT systems emphasizing fairness and equitable outcomes for all users, particularly those from historically disadvantaged communities.

Psychological models like General Adaptation Syndrome (GAS) and the Minority Stress Model provide insights into the mental and emotional toll biased FRT imposes on marginalized individuals. GAS, as Selye (1956) outlined, explains the stress response in three stages: alarm, resistance, and exhaustion. Individuals from marginalized communities who face a constant threat of misidentification may endure prolonged stress, which could lead to burnout and mental health disorders. Additionally, the Minority Stress Model suggests that racial discrimination such as the systemic misidentification inherent in FRT exacerbates stress and contributes to chronic mental health issues (Meyer, 2003). These models illustrate how biased technology compounds the psychological distress already experienced by people of color in environments of heightened surveillance and systemic inequality.

The Terror Management Theory (TMT) and Procedural Justice Theory offer frameworks for understanding how the fear of misidentification through FRT exacerbates distrust in social institutions. TMT posits that the fear of death influences human behavior, and for marginalized communities, the existential threat posed by

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