Data-Driven Model Free Adaptive Sliding Mode Control For Multi DC Motors Speed Regulation

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***Abstract*—This is Abstract**

I. Introduction

In short time ago, the field of control systems experienced significant advancements, particularly in the domain of multi-agent systems. Distributed coordination of multi-agent systems has been utilized in range of practical applications, including satellite formation, autonomous, underwater vehicules,automated highway systems, and mobile robots. These applications highlight the importance and adaptability of multi-agent systems in addressing complex real world challenges.

A critical aspect of multi-agent systems is robust speed regulation, effectively managing multi direct current (DC) motors is essential for acheiving complex machine movements. The complexity of such systems arises from the necessity to maintain synchronization and optimal performance despite parametric uncertainties and external disturbances. Conventional control methodologies often fall short in these dynamic and unpredictable environments, highlighting the need for more adaptive and resilient approaches.

Firstly, this paper aims to