

Chapter 1

Application of Support Vector Machine Algorithm in Automated Lending Protocols for Decentralized Finance Platforms

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ABSTRACT

The chapter delves into the application of the support vector machine (SVM) algorithm within automated lending protocols for decentralized finance (DeFi) platforms. It begins by outlining the landscape of decentralized lending and borrowing, highlighting the transformative nature of blockchain technology and smart contracts in eliminating intermediaries. Objectives encompass assessing protocol security, scalability, and regulatory implications, along with exploring socio-economic impacts. Theoretical underpinnings, including blockchain, smart contracts, economic incentives, and game theory, inform the discussion, emphasizing the role of SVM in enhancing

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algorithmic decision-making processes. Through SVM, these platforms can optimize risk management, interest rates, and liquidity provision, thus bolstering financial inclusivity and stability. The chapter concludes with key findings underscoring the pivotal role of SVM in advancing DeFi's core principles of transparency, efficiency, and decentralization.

1. INTRODUCTION

1.1 Background Information

Financial systems that function without a central authority or middleman and enable peer-to-peer lending and borrowing through the use of Blockchain technology and smart contracts are referred to as decentralized lending and borrowing approaches. Conventional lending and borrowing are dependent on centralized organizations, such as banks, that manage money transfers and impose costs and rules. With the goal of upending this paradigm, decentralized finance (DeFi) offers transparent, open, and permission less financial services. People can lend out their digital assets (tokens or cryptocurrencies) to others via decentralized lending and borrowing systems in return for interest, or they can borrow assets by pledging collateral. By automating the loan and borrowing process and removing the need for middlemen and counterparty risk, smart contracts—self-executing contracts having the contents of the agreement explicitly put into code—reduce counterparty risk. Liquidity pools, where users provide money for lending, and decentralized exchanges (DEXs), where borrowers can trade in different assets or apply for loans, are essential elements of decentralized lending and borrowing platforms (Turiel, J. D., et al 2020). Compound, Aave, and MakerDAO are a few examples of systems that provide decentralized lending and borrowing services. Research in this field may concentrate on enhancing the scalability, security, and efficiency of decentralized lending and borrowing protocols in addition to investigating their effects on stability and financial inclusion. Investigations on regulatory issues and the incorporation of decentralized finance into conventional financial systems might also be conducted.

1.2 Objectives

1. To assess the security, transparency, and user experience of current decentralized lending and borrowing protocols.
2. To investigate scalability issues within decentralized lending and borrowing platforms and propose strategies for enhancing their capacity to accommodate growing user populations and transaction volumes.

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