## TABLE OF CONTENTS

Chapter	Tido	Page No
No.	Title	
I	INTRODUCTION TO CLOUD SECURITY AND AI	01-18
	FUNDAMENTALS	
	1.1 Overview of Cloud Infrastructure (IaaS, PaaS, SaaS)	
	1.2 Security Challenges in Cloud Computing	
	1.3 Fundamentals of Artificial Intelligence and Machine	
	Learning	
	1.4 AI vs. Traditional Security Approaches	
II	THREAT MODELING AND RISK ASSESSMENT IN THE	19-34
	CLOUD	
	2.1 Cloud-Specific Threat Models	
	2.2 Common Attack Vectors	
	2.3 Risk Assessment using AI	
	2.4 Data Sources for Threat Intelligence	
III	AI FOR INTRUSION DETECTION AND ANOMALY	35-48
	DETECTION IN CLOUD ENVIRONMENTS	
	3.1 Intrusion Detection Systems (IDS) and Anomaly Detection	
	Systems (ADS)	
	3.2 Supervised vs. Unsupervised Learning for Detection	
	3.3 Deep Learning Models for Intrusion Detection	
	3.4 Real-Time Anomaly Detection in Cloud Telemetry	
IV	BEHAVIORAL ANALYTICS AND INSIDER THREAT	49-56
	DETECTION	
	4.1 User and Entity Behavior Analytics (UEBA)	
	4.2 Sequence Modeling using LSTM, GRU	
	4.3 Federated Learning for Privacy-Preserving Behavior	
	Analysis	

V	AUTOMATED SECURITY OPERATIONS USING AI	57-70
	5.1 Security Information and Event Management (SIEM) and	
	AI	
	5.2 Security Orchestration, Automation and Response (SOAR)	
	5.3 Natural Language Processing for Log Analysis	
	5.4 ChatOps and AI-Driven Decision Making in Security	
	Operations	
VI	AI-DRIVEN CLOUD CONFIGURATION MANAGEMENT	71-83
	AND COMPLIANCE	
	6.1 Infrastructure-as-Code (IaC) Security Analysis	
	6.2 Misconfiguration Detection using ML	
	6.3 Compliance Checking (e.g., ISO 27001, HIPAA) using AI	
	6.4 Reinforcement Learning for Automated Configuration	
	Correction	
VII	CHALLENGES, ETHICS, AND FUTURE TRENDS	84-96
	7.1 Adversarial Attacks on AI Models	
	7.2 Data Privacy and Bias in AI Security Systems	
	7.3 Ethical Implications of Automated Security Decisions	
	7.4 Emerging Trends: Explainable AI (XAI), Zero Trust with	
	AI, Quantum-resistant AI Security	