



Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:16-10-2024

Department	COMPUTER APPLICATIONS	Application No.	20240078
Area of Research	CYBER SECURITY	Research Mode	PART TIME

Name :RAJESH DAVID

Date of Birth / Age :17-06-1983 / 41 Years

Gender :MALE

Category :BC

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Father's/Husband's Name	DAVID	Father's/Husband's Occupation	FARMER
Family Income	100,000	Residential Type	RURAL
Birth Place	KOTTAIYUR	Mother Tongue	TAMIL
Religion	CHRISTIAN	Martial Status	SINGLE
Aadhaar No.	519647093793	PAN No.	AKWPR8826P
Physically Challenged	NO	Type of Disability	-
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Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
M.SC	COMPUTER SCIENCE	ALAGAPPA UNIVERSITY	2005	67	A	REGULAR
B.SC	COMPUTER SCIENCE	ST.JOSEPHS COLLEGE	2003	69	A	REGULAR

Experience					
Organization	Designation	Experience From	Experience TO	Work Nature	
KUKA US HOLDINGS LLC	PRINCIPAL SOFTWARE ENGINEER	2018-04-21	1970-01-01		
TCS	ASSISTANT CONSULTANT	2007-08-05	2018-04-20		

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
20240078_241020075521	ZICI1TG03CPYSL	20-10-2024	600	SUCCESS

AI-Driven Threat Intelligence and Automated Response Systems for Proactive Cybersecurity

Introduction

In today's fast-changing world of cyber threats, traditional cybersecurity methods that only react to attacks are no longer enough. Organizations are dealing with more complex threats, such as zero-day vulnerabilities, advanced persistent threats (APTs), and ransomware. Threat intelligence, which involves gathering and analyzing information about potential cyber risks, has become essential for fighting these attacks. This research will explore how using Artificial Intelligence (AI) in threat intelligence systems, along with automated response tools, can improve cybersecurity. The goal is to create systems that can detect, analyze, and stop threats in real time, making defenses more proactive and effective.

Problem Statement

Cyberattacks are getting more advanced, making it harder for organizations to respond quickly using traditional methods. While human-driven threat intelligence is useful, it often takes too long to gather, analyze, and respond to threats, leading to security breaches and data loss. The main challenge is to build systems that can not only spot new threats fast but also act automatically to stop them before they cause serious harm. AI has the potential to enhance threat intelligence by automating the process of collecting, analyzing, and responding to cyber threats, which would reduce the time between detecting and stopping an attack.

Research Objectives

The main goal of this research is to explore how AI can improve threat intelligence and response systems for cybersecurity. The specific objectives include:

1. **Automated Threat Detection:** Examining how AI systems can detect new threats in real time by automatically collecting and analyzing data.
2. **Threat Correlation and Prediction:** Investigating how AI can connect threat data from different sources and predict possible future attacks.
3. **Automated Incident Response:** Creating a framework for automatically responding to cyber incidents, such as isolating affected systems, applying software updates, or blocking harmful traffic.
4. **Measuring Effectiveness:** Assessing how well AI-driven threat intelligence systems perform compared to traditional cybersecurity methods.

Preliminary Literature Review

Threat Intelligence in Cybersecurity: Current threat intelligence systems mainly depend on humans to collect, analyze, and share information, which can slow down the response to fast-moving cyber threats. This is a big problem when dealing with zero-day exploits and advanced persistent threats (APTs), which are hard to detect quickly.

AI in Cybersecurity: AI, especially machine learning (ML) and natural language processing (NLP), is being used more and more to help automate the analysis of large amounts of cybersecurity data. AI algorithms can find patterns in things like network traffic, malware signatures, and threat intelligence reports.

Automated Response Systems: There is growing interest in creating automated systems that respond to cyber incidents, but most are still in the early stages. Integrating AI into these systems could help provide faster and more accurate responses to new cyber threats.

Research Methodology

This research will adopt both quantitative and qualitative methods to investigate how AI can be integrated into threat intelligence and automated response systems.

Data Collection:

- **Primary Data:** We will gather real-time network traffic data, threat logs, and security incident reports from cybersecurity monitoring systems.
- **Secondary Data:** We will analyze publicly available threat intelligence data feeds and review historical case studies of cyberattacks.

AI Techniques:

1. **Machine Learning Models:** We will use supervised and unsupervised learning algorithms to identify unusual behavior in network traffic, detect malware patterns, and recognize other indicators of compromise (IoCs).
2. **Natural Language Processing (NLP):** NLP models will be applied to process unstructured threat intelligence data, such as security advisories, news articles, and social media content, to identify emerging threats.
3. **Reinforcement Learning:** This approach will be used to enhance automated response mechanisms by learning from previous incidents and continually improving defensive strategies.

Framework Development:

We will develop a comprehensive AI-driven threat intelligence system to automate threat detection, correlation, and response. This framework will include:

- **Threat Detection Engines:** AI will be used to spot anomalies and flag potential threats.
- **Threat Correlation:** The system will correlate data from various sources (like network traffic, security advisories, and IoCs) to identify complex attacks.
- **Automated Response Systems:** We will implement response protocols (such as isolating affected systems, blocking malicious IP addresses, and applying system patches) based on the analyzed threat intelligence.

Conclusion:

As cyber threats become more complex, traditional security methods that only react to attacks are no longer enough. This research aims to use AI-powered systems to predict and stop threats before they cause harm. By creating a proactive and scalable approach, the research will help organizations detect and respond to attacks in real-time, lowering the chances of data breaches, service outages, and financial losses.

738/A96 .



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Alagappa University

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Reg. No:

அறிவியற் புலம்
FACULTY OF SCIENCE
அழகப்பா பல்கலைக்கழக ஆட்சிக்குழு

இராஜேஷ் தா

என்பவருக்கு
கணிப்பான் அறிவியலில் அறிவியல் நிறைஞர்
என்ற பட்டத்தை
அதற்குரிய தேவைகளை நிறைவு செய்தமையால்

முதல் வகுப்பில் ஏப்ரல் 2005 இல் அளிக்கிறது.
பல்கலைக்கழக முத்திரை பெறுகிறது.

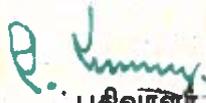
The Syndicate of the Alagappa University
hereby confers the degree of
MASTER OF SCIENCE IN COMPUTER SCIENCE
on

Rajesh D

with **First** class in **April 2005** for having
fulfilled the requirements for the degree.

Given under the seal of the University.

காரைக்குடி
Karaikudi


பதிவாளர்
Registrar


துணைவேந்தர்
Vice - Chancellor

நாள்: 18-10-2005
Date:



ALAGAPPA UNIVERSITY

Folio No. 738

ACCREDITED WITH 'A' GRADE BY NAAC

M.Sc. [Evening] [Computer Science] DEGREE EXAMINATIONS

CUMULATIVE

STATEMENT OF MARKS

NAME: RAJESH D. REG NO.: 2003553031

CODE	SUBJECT	MARKS			RESULT	MMYY
		I	E	T		
553101	DIGITAL INTEGRATED ELECTRONICS	22	35	57	PASS	NOV2003
553102	OBJECT ORIENTED PROGRAMMING - AND C++	23	42	65	PASS	NOV2003
553103	UNIX AND SHELL PROGRAMMING	25	35	60	PASS	NOV2003
553104	RDMS	25	35	60	PASS	NOV2003
553105	PRINCIPLES OF INFORMATION TECHNOLOGY	25	40	65	PASS	NOV2003
553106	COMPUTER LABORATORY - I (C++)	28	60	88	PASS	NOV2003
553107	COMPUTER LABORATORY - II (UNIX AND SHELL PROGRAMMING)	28	65	93	PASS	NOV2003
553201	VISUAL PROGRAMMING	25	36	61	PASS	APR2004
553202	SOFTWARE ENGINEERING	24	47	71	PASS	APR2004
553203	COMPUTER SYSTEM PERIPHERALS & TROUBLESHOOTING	24	38	62	PASS	APR2004
553204	OBJECT ORIENTED ANALYSIS & DESIGN	23	35	58	PASS	APR2004
553205	MULTIMEDIA SYSTEMS	24	43	67	PASS	APR2004
553206	COMPUTER LABORATORY - III (VISUAL PROGRAMMING)	25	37	62	PASS	APR2004
553207	COMPUTER LABORATORY - IV (TROUBLE SHOOTING)	26	59	85	PASS	APR2004
553301	COMPUTER NETWORKS	23	47	70	PASS	NOV2004
553302	INTERNET PROGRAMMING	22	36	58	PASS	NOV2004
553303	SOFTWARE TESTING AND RELIABILITY	24	42	66	PASS	NOV2004
553304	IMAGE PROCESSING AND PATTERN RECOGNITION	23	38	61	PASS	NOV2004
553306	COMPUTER LABORATORY - V (NETWORKING)	24	64	88	PASS	NOV2004
553307	COMPUTER LABORATORY - VI (INTERNET PROGRAMMING)	26	54	80	PASS	NOV2004
553308	COMPILER DESIGN	23	35	58	PASS	NOV2004
553401	PROJECT & VIVA	80	140	220	PASS	APR2005

Total [ONE SIX FIVE FIVE] CLASS FIRST

ALAGAPPA NAGAR KARAIKUDI - 630 003 ** Medium of Instruction : English **

DATED: 21/06/2005

MAX. PASSING MIN.

Written Paper 100 50%

Practical 100 50%

Dissertation 300 50%



Signature of Controller of Examinations

Controller of Examinations

P.T.O.



ALAGAPPA UNIVERSITY

Alagappa Nagar, KARAIKUDI - 630 003.

TRANSFER CERTIFICATE

No. 941

Adm / No: 03553031

Date of Issue: 22.8.05

1. Name of the Student : D. Rajesh
2. Name of the Parent / Guartian : A. David
3. Date of birth as entered in the Admission Register (in words) } Seventeen June
Nineteen Eighty Three
4. a) Class in which the Student was studying at the time of leaving } M.Sc [C.S.]
b) Subject studied : Computer Science
- c) Duration of the course : 2003 - 2005
5. Date of admission : 1.8.03
6. Date of leaving : 31.5.05
7. Whether qualified for promotion to a higher class } REFER MARK STATEMENT
8. Whether the student has returned all books and paid all the dues } Yes
9. Reason for leaving : COMPLETED THE COURSE

Head of the Department
of ... Department of Computer Science and Engineering,
ALAGAPPA UNIVERSITY,
KARAIKUDI-630 003.

DATE: 22.8.05

DEAN
Dr. S. SAKTHIVEL B.E., M.Sc (Engg.), Ph.D.,
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INCOME TAX DEPARTMENT



भारत सरकार
GOVT. OF INDIA

RAJESH DAVID
DAVID

17/06/1983

Permanent Account Number
AKWPR8826P



Rajesh

Signature



India Driving Licence(Tamilnadu)

Form 7

DOI 25/01/2010

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Temp.Add:
SRI KARPAGA VINAYAGAR DRVING SCHOOL
D.O.B. : 17/06/1983 B.G. :



Punishments:

Licensed to drive throughout India, vehicles of the following descriptions
M/CYCL WG 25/01/2010 TN63Z LMV 25/01/2010 TN63Z

Non-Transport Veh. Valid upto 24/01/2030



[Handwritten Signature]

Signature/L.T.I
of the Holder

[Handwritten Signature]
Asst.Licensing Authority
UNIT OFFICE, KARAIKUDI