

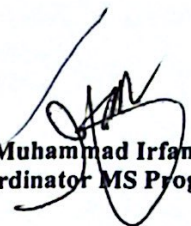
Kohat University of Science and Technology

Minute Sheet

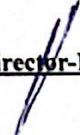
Ref. 136/IoC/Synopsis/ASR/24
March 11, 2024.

1. Subject: Submission of Synopsis (Fresh Case) for the Upcoming ASRB Meeting

This is in reference to the subject matter, find enclosed herewith the synopsis of Mr. Muhammad Nauman Hameed, CS320212005, MSCS scholar, for the subject meeting.


Dr. Muhammad Irfan Uddin
Coordinator MS Program

2. Director-IoC


89 20/3/24

3. Director ASR

CHECKLIST FOR M.PHIL SYNOPSIS

Name of Scholar: MUHAMMAD NAUMAN HAMEED
Registration No: CS320212005
Discipline: MS Computer Science

(Fresh)

S.NO	REQUIREMENTS	Remarks
1.	Covering letter duly Signed by the HoD	√
2.	Incorporation of observation form; observations raised by DGC (for fresh cases) or ASRB (for approved with changes / referred back / Rejected) duly signed by the supervisors and HoD	√
3.	Approval of Course work	√
4.	Approval of Supervisor(s)	√
5.	Supervision Certificate (Number of scholars under the Supervision of supervisor-I)	√
6.	Clearance Certificate duly signed by the HoD and Finance Section	√
7.	Anti-Plagiarism Certificate issued by QEC	√
8.	KUST Ethical Approval Certificate (if any)	-
9.	Consent Letter (if Supervisor is from outside the KUST)	-
10.	Synopsis Form (Annexure-B duly signed by Supervisors and DGC members)	√
11.	Complete Synopsis (Title Page duly Signed by Supervisors)	√



KOHAT UNIVERSITY OF SCIENCE & TECHNOLOGY

Kohat 26000, Khyber Pakhtunkhwa, Pakistan Ph # 0922-554563-554565, Fax #. 554566

Institute of Computing

CERTIFICATE REGARDING INCORPORATION OF OBSERVATIONS OF THE DGC/ASRB

Scholar Name	Research Title	Observations raised by DGC held on 22 Jan 2024	Action Taken	Remarks (if any)
Muhammad Nauman Hamed	A Real-Time Large-Scale IoT Traffic Anomalies Detection System Using Auxiliary Classifier Generative Adversarial Networks.	1. The document should be as per the approved format.	Indents are removed from the paragraphs. Headings are made as per the approved format	Please check the updated document
		2. The order of citations should be corrected. Reference number 5 comes after reference 6.	The said order has been corrected.	Please refer to page # 2
		3. Objective # 4 should be made SMART. The order of objectives should be corrected.	The objective is retyped, and important terms are added. Objective # 3 is swapped with Objective # 2 as directed during presentation	Please refer to page # 3 Objectives section
		4. How can we mark the data traffic FAKE or REAL? Appropriate words should be used.	These words are replaced with more appropriate words GENUINE and FABRICATED.	Please Refer to page # 4
		5. The figure 1 should be corrected as guided by DGC members.	The figure is redrawn, and some major changes are made as guided by DGC members.	Please Refer to page # 4
		6. Reference # 8 should be updated with more relevant work.	The said reference has been updated.	Please refer to page # 6

Dr. Muhammad Muzfer Umar

Dr. Muhammad Irfan Uddin

Name & Signature of Supervisor-I

Name & Signature of Supervisor-II

Name & Signature of Supervisor-III

Name & Signature of Departmental Graduate Committee:

1. Prof. Dr. Shafiqullah Khan, IoC Convener/Director

2. Prof. Dr. Wali Khan Mashwani, INS Member

3. Prof. Dr. Muhammad Asif Jan, INS Member

4. Dr. Amjad Mahmoud, Associate Professor, IoC Member

5. Dr. Saima Hassan, Assistant Professor, IoC Member

6. Dr. M. Irfan Uddin, Assistant Professor, IoC Co-Opted Member (Coordinator MS)

7. Dr. M. Altaf Khan, Assistant Professor, IoC Secretary DGC



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No.KUST/DASR/CW/loC/232

March 6, 2024

The Director,
Institute of Computing,
KUST.

Subject: **APPROVAL OF COURSE WORK**

Dear Sir,

Please refer to your office reference No. 82/loC dated 27.02.2024 regarding the subject matter; the following courses are approved duly recommended by the DGC in respect of **Muhammad Nauman Hameed**, Registration No. CS320212005, in your institute for the session 2021-22.

S.#	Course Code	Course Title	Core/Specialized / Elective Courses	Cr.Hrs	Grade
1.	CS-515	Theory of Computations	Elective	3.0	B+
2.	CS-517	Advanced Operating Systems	Compulsory	3.0	A-
3.	CS-661	Advance Machine Learning	Specialized	3.0	B+
4.	CS-516	Advance Analysis of Algorithms	Specialized	3.0	A
5.	CS-531	Advance Computer Architecture	Compulsory	3.0	B
6.	DS-501	Tools and Techniques for Data Science	Elective	3.0	D
7.	DS-505	Deep Learning	Specialized	3.0	B
8.	DS-521	Big Data Analysis	Elective	3.0	A
9.	DS-502	Statistical and Mathematical Methods for Data Analysis *Alt	Elective	3.0	B+

The scholar scored (CGPA 3.56/4.00) as per Academic Regulations for Graduate Program and is now eligible to proceed to the next post of action desired.

The course DS-502 is an alternate to the course DS-501.

Dr. Shamim Saleha
Director ASR, KUST

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No.KUST/DASR/Fall-22/IoC/229

March 6, 2024

The Director,
Institute of Computing,
KUST

Subject: **APPROVAL OF SUPERVISORS**

Dear Sir,

Kindly refer to your office reference No. 83/IoC dated 27.02.2024. Acting upon the powers delegated by the Competent Authority, the following faculty members are hereby approved to act as Supervisor-I, and Supervisor-II in respect of the below-mentioned MS Scholar:

NAME OF SCHOLAR	SUPERVISOR-I	SUPERVISOR-II
Muhammad Hameed CS320212005	Dr. Muhammad Muneer Umar, Institute of Computing, KUST	Dr. Muhammad Irfan Uddin, Institute of Computing, KUST

Dr. Shamim Saleha
Director ASR, KUST

Copy to:

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CERTIFICATE

Name of Supervisor _____ Dr. Muhammad Muneer Umar _____

Post MS/M.Phil/Ph.D. Experience: _____ 5 years Post Ph.D. Experience _____

No. of Students Supervised/ Co-supervised: _____ 0 _____

Total Number of Students under Supervision: _____ 0 _____

S.#	Name of Scholar	Degree Program (MS/M.Phil/ Ph.D.)	Semester	Date and meeting of synopsis approval	Current status of the Scholar

Name & Signature of Departmental Graduate Committee:

1. Prof. Dr. Shafiullah Khan, IoC
Convener/Director
2. Prof. Dr. Wali Khan Mashwani, INS
Member
3. Prof. Dr. Muhammad Asif Jan, INS
Member
4. Dr. Amjad Mahmoud, Associate Professor, IoC
Member
5. Dr. Saima Hassan, Assistant Professor, IoC
Member
6. Dr. M. Irfan Uddin, Assistant Professor, IoC
Co-Opted Member
7. Dr. M. Altaf Khan, Assistant Professor, IoC
Secretary DGC

Date: 22/01/2024



KOHAT UNIVERSITY OF SCIENCE & TECHNOLOGY
KOHAT

CLEARANCE CERTIFICATE

Jaynoor

Purpose of Clearance: Degree Provisional Transcript Security University/ Hostel Admission Cancellation Thesis Submission

Name of Student: Muhammad Nauman Hameed

Father's Name: Hameed Ullah Khan

Discipline: MSCS Semester 6th

Hostel Name (If Any) N67 Student Fee Slip ID No: _____

Office Use Only

Please report regarding his/ her outstanding books/ dues/ other thing (if any) of the above mentioned student.

Boarder Dayscholar Hostel Name

Hostel Manager _____

DIRECTOR
Institute of Computing
Kohat University of Science
& Technology

1. Head of Department *[Signature]* Provost Signature / Stamp

2. Librarian _____

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4. ENSC _____ 5. University Cafeteria _____

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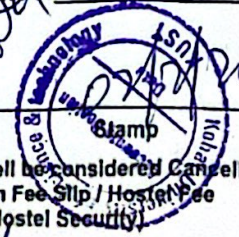
8. Accounts Section: Clear Outstanding

I. University Fee _____

II. Hostel Fee _____

[Signature]
Accountant Signature

cleared
Fall 2023



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(Note) Every Student has to present his / her 1st & last Admission Fee Slip / Hostel Fee Slip (Photo Copy will not be acceptable for University / Hostel Security)

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For M.Phil./MS/Ph.D Thesis/Synopsis

Name of Scholar: MUHAMMAD NAUMAN HAMEED

Discipline (M.Phil./MS/Ph.D.): MS

Department/Institute: INSTITUTE OF COMPUTING

Title of Synopsis/Thesis: A REAL-TIME LARGE-SCALE IOT TRAFFIC ANOMALIES DETECTION SYSTEM USING AUXILIARY CLASSIFIER GENERATIVE ADVERSARIAL Networks

Document Type (Synopsis/Thesis) Synopsis

Words Count 1474

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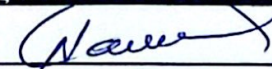
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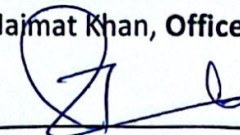
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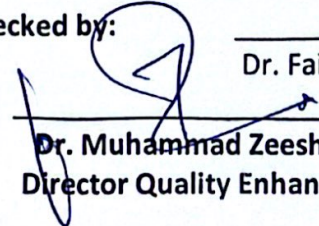
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A Real Time - large scale IoT By Nouman Hameed

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INTRODUCTION The exceptional development of connected devices in the Internet of Things (IoT) era has led to an exponential increase in data flow. The enormous network of linked devices has created difficult and significant issues for the management and security of these digital networks. A major factor contributing to the fast expansion of IoT is the proliferation of gadgets, which ranges from wearables and smart homes to industrial sensors and autonomous vehicles. This spread has changed the way we interact with our environment by establishing a digital ecosystem where billions of gadgets can communicate, gather data, and help make decisions in real time [1]. Normal traffic and malicious traffic represent two distinct categories of data flows on computer networks. Normal traffic encompasses the routine, legitimate data exchanges occurring within a network. These activities include access to web-based data, sending messages, transferring files, and other control and authorized interactions among different devices and users. In contrast, malicious traffic consists of data flows with harmful intent, aiming to compromise network security, disrupt operations, or gain unauthorized access. This category encompasses a cyber-threat, such as malware, denial of service attacks, intrusion attempts, phishing, and spam, all orchestrated by cybercriminals (malicious actors). The differentiation between normal and malicious traffic is vital in network security as it enables the deployment of appropriate security measures to detect malicious activities [2]. An important issue in the IoT landscape is the existence of unexpected and potentially harmful traffic patterns within the massive stream of data that characterizes it. These traffic patterns cover a broad range of activities, from simple data exchanges to more intricate ones. The regular data traffic produced by IoT devices, the cyclical nature of sensor data, and even the irregular and sporadic data flows that could point to odd behavior or security risks are examples of patterns. Malicious activity can seem as IoT traffic patterns, including attack types like Denial of Service (DoS), Distributed Denial of Service (DDoS), Route Spoofing, Mirroring, and Spoofing are just a few examples [3]. Although efforts have been made to develop systems that can identify anomalous activity in IoT networks, these normal methods have downsides. They frequently encounter challenges adjusting to the constantly changing traffic created by malicious actors and encounter issues with the large and unbalanced datasets that are typical on the IoT context. Because of their potential difficulties in handling these diverse traffic patterns, current systems run the danger of producing false positives and false negatives during the detection process [4]. Traditional machine learning algorithms are not suitable for processing unstructured data from IoT systems, which require strong pattern recognition tools for anomaly detection. Several data types can be used to train deep learning algorithms, ensuring secure and reliable data transmission in IoT networks. However, data-centric IDS technologies may be insufficient due to the limited scope of IoT systems and the lack of user consent for dataset sharing [5]. Generative adversarial networks (GANs) can address unbalanced datasets by generating genuine anomalous data, which can be used for anomaly detection in IoT networks. Synthetic data generation is effective when data production is expensive or when anomalies are infrequent. Deep learning methods are suitable for anomaly detection in big data


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SYNOPSIS FORM

1. Research Topic:

A Real-Time Large-Scale IoT Traffic Anomalies Detection System Using Auxiliary Classifier Generative Adversarial Networks

RANDOM FOREST

2. Scholar:

Name Muhammad Nauman Hameed

Registration No CS320212005

Department/ Institute/ Centre Institute of Computing

Date of Admission 2 March 2022

3. Supervisors:

Name of Supervisor I: Dr. Muhammad Muneer Umar

Signature: 

Name of Supervisor II: Dr. Muhammad Irfan Uddin

Signature: 

Name of Supervisor III (if any): _____

Signature: _____

Name & Signature of Departmental Graduate Committee:

1. Prof. Dr. Shafiqulah Khan, IoC
Convener/Director

2. Prof. Dr. Wali Khan Mashwani, INS
Member

3. Prof. Dr. Muhammad Asif Jan, INS
Member

4. Dr. Anjad Mahmood, Associate Professor, IoC
Member

5. Dr. Saima Hassan, Assistant Professor, IoC
Member

6. Dr. M. Irfan Uddin, Assistant Professor, IoC
Co-Opted Member (Coordinator MS)

7. Dr. M. Altaf Khan, Assistant Professor, IoC
Secretary DGC

Date: 22/01/2024