



Rana Abu Bakar

WORK EXPERIENCE

20/08/2020 – 31/10/2022 Bangkok, Thailand

RESEARCH ASSISTANT CHULALONGKORN UNIVERSITY

1. Writing literature review
2. Conducting research on hardware-based scanners and summarizing findings.
3. Attending weekly group and one to one meetings
4. Checking the work progress of master's projects
5. Performs various job-related duties as assigned by supervisor

19/07/2015 – 01/08/2020 KASUR, Pakistan

ASSISTANT MANAGER CENTURY PAPER & BOARD MILLS

60 Network designs, 40 network support jobs per day, Network traffic monitoring, supporting and developing new Security mechanisms, I.T documenting and enforcing ISO system standards in the I.T department.

31/08/2018 – 01/09/2022 Sahiwal, Pakistan

VISITING LECTURER UNIVERSITY OF SAHIWAL

Conducted lectures on Operating Systems, Cyber Security, Cloud Computing, Data Structure, Data Warehouse and Databases, delivered 12 hours per week of instructions in theory and hands on labs.

EDUCATION AND TRAINING

01/10/2022 – CURRENT Pisa, Italy

PHD STUDENT Scuola Sant'Anna Pisa

Address Piazza Martiri della Libertà, 33, 56127, Pisa, Italy | **Website** <https://www.santannapisa.it/>

30/09/2015 – 05/06/2018 Lahore, Pakistan

MSCS Virtual University of Pakistan

As an M.S student, I developed a particular interest in the machine learning research gaps and limitations which affect large-scale businesses and economic outcomes worldwide. Progressing toward the interest, I have used a machine-learning-based optimized technique to detect DDoS attacks in real-time traffic and mitigated attacks at the initial attack stage by using SNORT-based IPS in my Master's project.

Field of study Computer Science | **Final grade** 3.66/4.0 |

Thesis SMART ROUTING BASED ON DDOS DETECTION WITH INTELLIGENT SURVIVABLE CENTRIC NETWORK AGENT

31/08/2013 – 22/07/2015 Islamabad, Pakistan

MCS Comsats University

In my undergraduate M.C.S, I have studied a broad mixture of science and engineering subjects. Various courses like Artificial Intelligence (Robotics), Programming Languages (C, C++, JAVA, Android, Assembly), Software Engineering, Assembly, Algorithm Analysis and Design, Data Structure, Computer Networks,

Computer graphics, and multimedia. Computer Simulation and Modelling gave me an excellent background in the theoretical concept of Computer Science and Engineering.

Field of study Computer Science | **Final grade** 3.20/4.0 | **National classification** 1 | **Number of credits** 72

● LANGUAGE SKILLS

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● DIGITAL SKILLS

Proficient in Python, Java, Javascript, C, C++ and some knowledge of Matlab | LINUX / UNIX / MAC OSX / WINDOWS | Kali Linux (network penetration testing) | OMNeT++ | NS2/NS3 Simulator | VMWARE ESXi | Virtualization (VMware vSphere, VMWare vSAN) | Ability to manage security solutions (email gateway, WAF, DLP, endpoint security, network firewall) | ■ Basic knowledge: Linux, digital forensics, penetration testing, networking | Different DCS and QCS (Voith, ABB, Valmet)

Tech+Tools: Splunk, Palo Alto Networks, Cisco ASA, ESM, Fortinet FortiGate, Check Point Firewall,

● ADDITIONAL INFORMATION

PUBLICATIONS

DPUAUT: Secure Authentication Protocol with SmartNiC Integration for Trustworthy Communications in Intelligent Swarm Systems

– 2024

Submitted for Publication in IEEE Access

[Cascaded Look Up Table Distillation of P4 Deep Neural Network Switches](#) – 2023

De Marinis, L., Paolini, E., Bakar, R. A., Cugini, F., & Paolucci, F.

[An Intelligent Agent-Based Detection System for DDoS Attacks Using Automatic Feature Extraction and Selection](#)

– 2023

[Enhancing Network Visibility and Security with Advanced Port Scanning Techniques](#) – 2023

Rana Abu Bakar, Boonserm Kijsirikul

[LSNCP: Lightweight and Secure Numeric Comparison Protocol for Wireless Body Area Networks](#) –

2023

[An effective mechanism to mitigate real-time DDoS attack](#) – 2020

R. Abubakar et al., "An Effective Mechanism to Mitigate Real-Time DDoS Attack," in IEEE Access

CONFERENCES AND SEMINARS

14/12/2021 – 16/12/2021 – Bangkok, Thailand

The 16th Asian Internet Engineering Conference (AINTEC)

17/12/2019 – 23/12/2019 – Lahore, Pakistan

IEEE International conference Open-Source Software (ICOSST) The 13th IEEE International conference (ICOSST) will be held in UET Lahore, Pakistan, from 17 -19 December 2019.

RECOMMENDATIONS

Muhammad Saqib Javed Lecturer

Lecturer Computer Science at Virtual University of Pakistan

Email saqibjaved@vu.edu.pk | **Phone** (+92) 042111880880

Hasnain Ahmad Assistant Professor

Assistant Professor of Computer Science at Virtual University of Pakistan

Email hasnain@vu.edu.pk | **Phone** (+92) 042111880880

COMMUNICATION AND INTERPERSONAL SKILLS

Communication Skills Good communication skills were gained through my experience as a visiting lecturer and as a presenter at conferences.

VOLUNTEERING

09/07/2015 – CURRENT Kasur, Pakistan

Volunteer at Human Rights Commission I am providing voluntary services for the Establishment of Human Rights Information Management System at our district office of HRC. Also take part of awareness on international human rights principle and take part in survey to promote tolerance and respect for human rights in our district.

18/01/2023 – CURRENT Pisa

System and Network Admin Support Providing Systems and Networking Support in the Network and Services Lab at Scuola Sant'Anna Pisa.

ONLINE COURSES

31/03/2020 – 30/04/2020

Data Science: Machine learning from Harvard

<https://www.coursera.org/account/accomplishments/certificate/5N422AJ839YQ>

31/12/2018 – 05/12/2019

Machine Learning from Stanford University

Link <https://www.coursera.org/account/accomplishments/certificate/5N422AJ839YQ>

01/12/2019 – 01/04/2020

Information Security: Context and Introduction

Information Security: Context and Introduction course organized by the University of London, Royal Holloway, the University of London at Coursera.

Link <https://www.coursera.org/account/accomplishments/certificate/8BF8E9FL2KBG>

01/09/2019 – 01/11/2019

AI For Everyone

Link <https://www.coursera.org/account/accomplishments/certificate/QNDH8AGV6XPD>

01/08/2019 – 01/11/2019

AWS Fundamentals: Going Cloud-Native

Link <https://www.coursera.org/account/accomplishments/certificate/YBMKYVFKT6F3>

SELECTED BIBLIOGRAPHY

An effective mechanism to mitigate real-time DDoS attack

Abubakar, Rana, et al. "An effective mechanism to mitigate real-time DDoS attack." *IEEE Access* 8 (2020): 126215-126227.

Link <https://ieeexplore.ieee.org/document/9097187>

An efficient secure auditing framework for big data storage in cloud computing environment

Fatima, Sameen, Dr Hussain, and Rana Abu Bakar. "An efficient secure auditing framework for big data storage in cloud computing environment." *International Journal of Computing and Digital Systems* (2021).

TRAININGS

10/06/2021 – 12/03/2022

Certified Information Systems Auditor (CISA) training

NUST College of Electrical & Mechanical Engineering (CEME) organized Certified Information Systems Auditor (CISA) training.

04/05/2016 – 07/12/2016

PLC HMI SCADA Training

COMSATS Institute of Information Technology and IEEE CIIT Lahore (Industrial Automation Lab Training & Skill Development Programmes) organized PLC HMI SCADA training
