

ARKA GHOSH

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EDUCATION

Geroge Mason University <i>PhD Information Science and Technology, Concentration in Cybersecurity</i>	2024 - Present
Digital University Kerala (Formerly IIITM-K) <i>M.Sc. Computer Science with specialization in Cybersecurity</i>	2022 - 2024 8.44 (2nd in Class)
University of Calcutta <i>B.Sc. Computer Science</i>	2019 - 2022 8.71 CGPA (5th in class)

EXPERIENCES

Internships:

- **R&D Intern -Centre for Distributed Computing, Jadavpur University(February 2024-July 2024)**, Researched and developed solutions for SDN and Moving Target Defense.
- **R&D Intern -Centre for Digital Transformation and Innovation(October 2023-February 2024)**, Worked on computer vision research, contributing to new solution development.
- **Research Intern -George Mason University(July 2023-August 2023)**, Conducted novel research on network defense under Dr. Massimiliano Albanese.
- **Penetration Tester Trainee -Techgyaan Technologies(December 2021)**,
 - Conducted comprehensive penetration testing and documentation in a sandboxed environment.
 - Identified and reported 30+ vulnerabilities, leading to enhanced security protocols.
- **Technical Content Writer for DataFlair(July 2021-September 2021)**, Authored articles on emerging Java technologies, helped increase site traffic by SEO.

Technical Project:

- **OWASP Juice Shop Vulnerability Analysis**
Used Kali Linux and Burp Suite to identify 50+ vulnerabilities.
Enhanced understanding of web application security.
- Created a user-friendly web application using Flask that uses an ensemble learning method and helps detect if a given email/message is spam or ham.(<https://ensemblespamdetector.onrender.com/>)
- Created a website using WordPress, elementor.(<https://arkag30.github.io/MyProjects/>)

Technical Writings:

- Wrote articles related to cybersecurity online. <https://arkag30.medium.com/>
- <https://www.researchgate.net/profile/Arka-Ghosh-13>

Managerial Roles:

- **Hack-X Cybersecurity Society Founding Member.** Roles include organizing CTF, seminars, and various other activities.
- **Placement Cell DUK core team Member.** Roles include management of various placement activities.

PUBLICATIONS AND CONFERENCES

Improving the Efficiency of Intrusion Detection Systems by Optimizing Rule Deployment Across Multiple IDSs <i>21st International Conference on Security and Cryptography</i>	SECRYPT 2024
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- This paper proposes a novel approach for strategic rule deployment in Intrusion Detection Systems (IDS) using attack graph-based modeling and network topology knowledge, balancing load across IDSs under capacity constraints. A practical heuristic solution based on a genetic algorithm is presented to optimize rule deployment.

<http://dx.doi.org/10.5220/0012814500003767>

Ensemble Learning And its Application in Spam Detection

ICCECE

International Conference on Computer, Electrical & Communication Engineering

2023

- Ensemble learning is employed to enhance email classification by considering distinct features of spam mails. Four diverse models, SVM, MNB, RF, and DT, are used for max voting. After evaluating various combinations, the optimal result is achieved by combining SVM, MNB, and DT.

<https://ieeexplore.ieee.org/document/10085378>

SKILLS

Technical Skills

- C, C++, Python, Java, HTML, CSS, Flask, Php, JavaScript, WordPress, GIT, Kali Linux, MySQL, Vulnerability Assessment and Penetration Testing, Ethical Hacking, Machine Learning, GNS3(Network Simulation)

Other Skills and Hobbies

- Guitar, Ukulele, Harmonica, Painting, Abacus(Level 8)

ACHIEVEMENTS AND CERTIFICATIONS

Outstanding Academic Performance Award

2024

- Awarded for my performance in Masters and extracurricular activities.

CCNA v7.0

2024

- M1 - Introduction to Networks
- M2 - Switching, Routing, and Wireless Essentials
- M3 - Enterprise Networking, Security, and Automation

Smart India Hackathon Internals

2023

- First Runner-up in SIH 2023 internals organized in DUK.

CTF 1.0

2022

- First Runner-up Organized by KSAAC https://ksaac.duk.ac.in/event_past.php

Entrepreneurship Cell IIT Kharagpur Penetration Testing Winter Camp

2021

- Winter Camp training program on Penetration Testing in association with E-Cell IIT KGP

Cybersecurity and Ethical Hacking Course

2021

- Cyber Security and Ethical Hacking for Beginners and Advanced from GUVI Geek.

Guinness Book Of World Record

2021

- Participated in the AI-for-India World Record Winning event organized by GUVI Geek and AICTE.

IIT Madras Certified Python Course

2021

- Completed an in detailed course on python programming under distance learning by IIT Madras.

Inter School Band Competition

2017

Auxi-Aura

- Second Runner Up in the Auxi Aura 2017 inter-school band competition.
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