

Aditya Mitra

Security Researcher

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Experience

Researcher

Center of Excellence in Artificial Intelligence and Robotics, VIT-AP

February 2022 - Present

- Have extensively researched network and security for Internet of Things (IoT) applications.
- Have researched various aspects of passwordless authentication and secure deployment.
- Have researched on malware pertaining to Android-based systems and their detection and mitigation.

Co-Founder, CTO

Digital Fortress Pvt. Ltd. (Student-led startup)

April 2022 - Present

- Maintained the best security practices for the application.
- Developed, maintained, and deployed the cloud servers and their security.
- Deployed passwordless authentication at enterprise level
- Deployed applications on multiple cloud platforms, including Azure, and AWS, in Linux based servers.
- Led a team developing next gen passwordless authentication systems providing SSO and CSP service.
- Worked with Databases like SQL and Firebase

Product Development Intern

Infinite Consultancy B.V.

August 2023 – Present

- Developed a smart card reader with proprietary features and cryptographic technologies.
- Worked on ISO7816 NFC technology and HID devices. [Project overview](#)
- Worked with Microsoft Teams Room device deployment and custom feature development.
- Worked with the core Windows operating system of the Microsoft Teams Room devices.

Pentester Intern

Fresh Digital ([Letter of Recommendation](#))

March 2022 – April 2022

- Performed a security test of client network.
- Pentested the production environment.

Microsoft Learn Student Ambassador

Beta ([Certificate](#))

October 2021 - Present

- Conducted multiple events on technical topics that enhanced public speaking skills.
- Mentored fellow ambassadors in MLSA community.

Null Chapter, VIT-AP

Vice President ([Certificate](#))

December 2022 – August 2023

- Showcased an attack where a spoofed public charger can be used to take control of Android phones.
- Conducted an event on cloud security practices with Microsoft Azure
- Conducted an event on networking, network security, firewalls, and secure configurations.
- Conducted a session to demonstrate secure passwordless authentication with FIDO2 specification.
- Set challenges for and evaluated multiple Capture the Flag (CTF) events.
- Was awarded the [Best Member](#) for the year 2021-2022.

Personal Achievements

- Contributed during the Metaverse demonstration at the "Recent Research Trends and Applications of AI and IoT" FDP at NIT Warangal. ([Letter of Recommendation](#))
- Reported Vulnerability 1721 to FIDO Alliance that affected all FIDO Authenticators with NFC technology, allowing a malware based MITM attack. ([Vulnerability Report](#))

The latest version of this document is available at <https://AdityaMitra5102.github.io/resume.pdf>



Aditya Mitra

Skills & Interests

Technical: Java, OOPs, Git, C Language, Python, Cuda, Linux, Networking, IoT, Azure, SQL, FIDO2 Specifications

Language: English (Fluent), Bengali (Native), Hindi (Intermediate)

Interests: Open Source, Internet of Things, Passwordless Authentication, Cloud Computing

Projects, Hackathons and Competitions

Connet

- Open-source tool for staying anonymous on networks.
- Rapidly changes static IP address on the same address space offered by the DHCP server.
- Rapidly changes physical or MAC address.
- Uses an open-source VPN to change public IP address.
- <https://adityamitra5102.github.io/blog/connet.html>

TutorGPT

- Leveraged open-source library PrivateGPT to parse academic materials.
- Developed a pipeline with Flask as a webserver and langchain, using GPT3.5.
- Materials supplied by a faculty can be uploaded and follow up questions for doubt clearing can be asked.
- <https://adityamitra5102.github.io/blog/tutorgpt.html>

FIDO Developer Challenge India, 2022 – Top 3 [Certificate](#), INEX 2022 – Silver Award [Certificate](#)

MAuthN

- Developed as a project under Digital Fortress.
- Implemented passwordless authentication for low end devices and remote servers.
- Evaluated with NodeMCU with very less computing power.

Smart India Hackathon, 2022 – Winner [Certificate](#)

MediaRF – Transmission of multimedia files securely over police radios

- Encoding files to be transmitted over walkie-talkies / any audio communication device.
- Implemented robust compression algorithms for multimedia files, encryption of the files and encoding using various PSK, FSK and QAM algorithms.
- Related Skills: Cryptography, Python, Modulation-demodulation, file compression
- <https://adityamitra5102.github.io/blog/transmission.html>

IONathon 1.0 – Top 10 finalists [Certificate](#)

PP2PP – Painless Peer to Peer Payments

- Secure payments gateway, incorporating additional features like nearby payments and advanced security standards.
- Leveraged physical security, along with best cloud security practices for security.
- Related Skills: Azure, Python, FIDO2 Specifications, Web development
- <https://adityamitra5102.github.io/blog/pp2pp.html>

Microsoft Imagine Cup, 2022 – India Runner-up [Certificate](#)

Reverse Proxy

- Seamless student attendance platform, eliminating malpractices like Proxy attendance.
- Leveraged public key cryptosystem (RSA) and device attestation with FIDO2 Specifications.
- Related Skills: Azure, Python, FIDO2 Specifications, Web development
- <https://adityamitra5102.github.io/blog/rproxy.html>

Loki (Published in IEEE Access)

- FIDO2 Compliant physical lock for protecting physical assets.
- Leveraged public key cryptosystem (RSA) and best cloud security practices.
- Probably the first ever physical lock to work seamlessly and well as with high security and easy access control.
- Related Skills: Azure, Python, FIDO2 Specifications, Internet of Things, Cryptography.
- <https://adityamitra5102.github.io/blog/loki.html>

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Hackerearth Hack to Enable, 2021 - 6th Position.

Cam Braille

- Project aimed at enabling visually impaired persons to read and highlight text for future reference.
- A fingertip camera was implemented to enable visually impaired people to read text with their finger followed by a text to speech output through connected headphones.
- Text highlight feature stored the highlighted text to cloud for future reference.
- Related Skills: Azure, Python, Raspberry Pi, IoT, Image Processing, Text recognition.
- <https://adityamitra5102.github.io/blog/cambraille>

Education

VIT-AP UNIVERSITY

B. Tech in Computer Science and Engineering with specialization in Robotics (CGPA: 8.21)

Amravati, Andhra Pradesh

2020 - 2024

Publications

- Ghosh, A., Mitra, A., Saha, A., Sethuraman, S. C., & Subramanian, A. (2024). MERP: Metaverse Extended Reality Portal (Version 1). arXiv. <https://doi.org/10.48550/ARXIV.2402.05592>
- Mitra, A., Ghosh, A., & Sethuraman, S. C. (2023). TUSH-Key: Transferable User Secrets on Hardware Key. arXiv preprint arXiv:2307.07484. <https://doi.org/10.48550/arXiv.2307.07484>
- Ujjwal Reddy, K.S., Sibi Chakkaravarthy, S., Gopinath, M., Mitra, A. (2023). A Study on Android Malware Detection Using Machine Learning Algorithms. In: Nandan Mohanty, S., Garcia Diaz, V., Satish Kumar, G.A.E. (eds) Intelligent Systems and Machine Learning. ICISML 2022. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 470. Springer, Cham. https://doi.org/10.1007/978-3-031-35078-8_20
- Sethuraman, S. C., Mitra, A., Ghosh, A., Galada, G., & Subramanian, A. (2023). MetaSecure: A Passwordless Authentication for the Metaverse (Version 1). arXiv. <https://doi.org/10.48550/ARXIV.2301.01770>
- S. C. Sethuraman, A. Mitra, G. Galada, A. Ghosh, and S. Anitha, "Metakey: A Novel and Seamless Passwordless Multifactor Authentication for Metaverse," 2022 IEEE International Symposium on Smart Electronic Systems (iSES), Warangal, India, 2022, pp. 662-664, doi: 10.1109/iSES54909.2022.00148. <https://doi.org/10.1109/iSES54909.2022.00148>
- S. C. Sethuraman, A. Mitra, K. -C. Li, A. Ghosh, M. Gopinath, and N. Sukhija, "Loki: A Physical Security Key Compatible IoT Based Lock for Protecting Physical Assets," in IEEE Access, 2022, doi: 10.1109/ACCESS.2022.3216665. <https://doi.org/10.1109/ACCESS.2022.3216665>
- Mitra, A., S. K., Chakkaravarthy, S., Cruz, M. V., Rajan, G. P., & Ganesh, S. S. (2022). A Potable Water Location Tagging System for Victims of Natural Calamities. In Environmental Challenges (p. 100617). Elsevier BV. <https://doi.org/10.1016/j.envc.2022.100617>

Certifications

- CompTIA Security+ Certified
 - CompTIA Network+ Certified
 - Microsoft Certified: Security, Compliance, and Identity Fundamentals
 - Microsoft Certified: Azure Fundamentals
 - Oracle Certified Associate: Java SE 8 Programmer
 - CLA - C Certified Associate Programmer
 - Google IT Support Certificate
 - Google Cybersecurity Certificate
 - Microsoft Technology Associate: Introduction to Programming with Java
- <https://www.credly.com/users/aditya-mitra.a830b75a/badges>

