

# Abhay Nayar

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## WORK EXPERIENCE:

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### **Security Engineer – Amazon Ads, Bangalore:**

- Security Engineer II: (October 2023 - Present):
- Security Engineer I: (December 2021 - September 2023):
- Security Engineer Intern: (October 2020 - January 2021):

As a security engineer at Amazon Ads, I research and develop network and browser-based forensics techniques to detect and mitigate robotic traffic that Amazon receives on its first and third party ad supplies. My work mainly revolves around diving deep into TCP/IP, TLS, HTTP, Web Browsers, and JavaScript to implement bot detection techniques.

Other than this, my work includes doing incidence response on bot attacks and customer escalations, performing threat hunting exercises, working with ML engineers and SDEs to implement and generalize algorithms based on our findings, creating strategy docs, and creating threat models and mechanisms to protect our techniques from being circumvented.

### **Mobile Security Intern – intelliCard, Switzerland:**

- (February 2021 - September 2021):

In this internship, my role was to pentest iOS and Android implementations of a security-sensitive library. I also improved the detection and anti-tampering measures, making it harder for adversaries to break into it in the future.

## EDUCATION:

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### **Manipal Institute of Technology, Manipal:**

B. Tech. in Information Technology: (2017 - 2021): CGPA: – 8.9/10.0:

- **Cryptonite**: Founding member of college CTF team. (top 10 in India). More details on the next page.
- **Academic Excellence, 2019**: Ranked 3rd (out of around 120 students) by cGPA in the IT branch.
- **Samsung PRISM IoT, 2020**: Rated EXCELLENT in Samsung PRISM research project based on IoT.
- **Meiji University, Japan – June, 2019**: Summer school programme – received an S grade. (excellent).

### **Mayo College, Ajmer:**

12th grade: (2015 - 2017): 91%: English, Physics, Chemistry, Maths, Computer Science:

10th grade: (2008 - 2014): 10.0 cGPA: English, French, Maths, Science, Social Science:

- CERN, Switzerland – June, 2016: Trainee, did research work for the CMS Collaboration.
- Was 1 of 3 students selected from our entire batch for a fully-funded student-exchange programme in Thailand (by Harsh Vardhan Shringla – then Indian Ambassador to Thailand) and a Warrior Foundation scholarship for best all-around performance in our batch.

- Won several awards across the years in interschool IT competitions & academics.
- Was the lead editor and founding-member of the school's filmmaking club.
- Received Special Medals of Excellence in IT & Academics.

## PERSONAL PROJECTS:

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- [obsidian](#): Write-ups and notes on CTF challenges. (competitive hacking competitions).
- [n2t-wasm](#): Developed an emulator on WebAssembly for the Hack CPU.
- [genesis](#): Developed and extended the Jack operating system. (from nand2tetris course).
- [neon](#): Developed a wrapper on frida for Android.

## OPEN SOURCE CONTRIBUTIONS:

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Did some minor contributions on some popular open source security projects on GitHub:

- MobSF/Mobile-Security-Framework-MobSF: [Added symlink support to path traversal detection](#)
- OWASP/owasp-mastg: [added fix for '/system' not in /proc/mounts](#)
- SerenityOS/serenity: [LibWeb: Fix link on crashed browser page](#)
- hasherezade/malware\_training\_vol1: [Lab setup: Run WinDbg as Administrator](#)

## SECURITY CTF EXPERIENCE:

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I have previously competed in several security CTFs (competitive hacking competitions) in categories such as binary exploitation, reverse engineering, and application security. I was a founding member of team Cryptonite. (ranked #4 in India). Details of the CTF competitions and their statistics can be found on the [Cryptonite CTFtime.org page](#).

I individually secured #2 rank (out of 150 college students) in InCTF Nationals 2019 hosted by team bi0s (ranked #1 in India) and got an Amazon internship through this. I also individually qualified for *Cisco SecCon CTF Finals* final round. (top 15 out of 300 participants).

## CERTIFICATIONS:

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- [Pentesterlab PRO](#): Completed 201 Exercises. (10 Badges).
- [Software Security – University of Maryland](#).
- [Google Cloud Fundamentals: Core Infrastructure](#).
- [Build Basic Generative Adversarial Networks \(GANs\)](#).
- **The Elements of Computing Systems**: (Nand2Tetris):
  - [Build a Modern Computer from First Principles: From Nand to Tetris. \(Project-Centered Course\)](#).
  - [Build a Modern Computer from First Principles: From Nand to Tetris Part II. \(Project-Centered Course\)](#).
- [Deep Learning Specialization](#): (By Andrew Ng):
  - [Neural Networks and Deep Learning](#).
  - [Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization](#).
  - [Structuring Machine Learning Projects](#).
  - [Convolutional Neural Networks](#).
  - [Sequence Models](#).