Gokulkrishna P Menon

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Work Experience

2023 to present **Vulnerability Researcher**, *Lucid Motors*, Newark, CA.
- Built a multi-stage security pipeline (SAST, DAST, Triage, and Patching) for C/C++, Go, Python, and Android that uses LLMs to identify security flaws and traces data flow backward from vulnerable sinks to attacker-controlled sources.
- Integrated the SAST and automated triaging components into CI/CD pipelines to identify and rank new vulnerabilities across product source trees.
- Developed an automated DAST framework that leverages SAST findings and LLMs to generate custom fuzzing harnesses, enabling targeted dynamic testing of identified code paths.
- Orchestrated large-scale fuzzing campaigns using Kubernetes, scaling dynamic analysis across distributed environments to maximize coverage and stability.
- Performed manual code reviews and binary analysis on ARM and X64 applications, writing proof-of-concept exploits to help developers validate and patch security issues.
- Developed Python tooling for firmware rehosting, CMAC verification, and replay prevention across ECUs and network-exposed interfaces.

2018-2023 **Security Researcher**, *Arizona State University*, Tempe.
- Developed a hybrid fuzzing framework called FlakJack that combines mutation-based fuzzing with dynamic patching built on top of AFLplusplus and angr.
- Participated in CTF competitions with Shellphish since 2018, specializing in reverse engineering and web security challenges, and achieved a top 10 ranking in DEF CON CTF finals.

2015-2018 **Security Researcher**, *Amrita University*, Kollam.
- Participated in CTF competitions with team bi0s and research projects on web security, reverse engineering, and web privacy.
- Found and reported security vulnerabilities in CMSes, earning CVEs.
- Collaborated with security teams to remediate vulnerabilities and ensure timely patching.

June 2017 - August 2017 **Security Engineer Intern**, *Mobiliya*, Pune.
- Developed and implemented Ethereum contracts with various functions.
- Created and managed accounts on the Ethereum network.
- Designed and implemented secure voting mechanisms for proposals.

Teaching Experience

2023 **Teaching Assistant for CSE 365**, *Assisted Dr. Fish Wang in an Information Assurance course, giving lectures, grading, and mentoring students. With other TAs, improved the course content.*

2019 **Teaching Assistant for CSE 365**, *Oversaw sessions, graded assignments, and offered guidance and assistance to students enrolled in the Introduction to Information Assurance course.*

2019   **Teaching Assistant for CSE 598**, *Assisted Dr. Tiffany Bao's computer security course, where I led sessions and graded assignments.*

Education

2019-2023   **Masters in Computer Science**, *Arizona State University*, Tempe, Arizona.

2014-2018   **Bachelors in Computer Science and Engineering**, *Amrita University*, Kollam, Kerala.

Publications

2024   **Fuzz the Future: Uncovering Occluded Future Vulnerabilities by Robust Fuzzing**, *Arvind S Raj, Wil Gibbs, Fangzhou Dong, Jayakrishna Menon Vadayath, Michael Tompkins, Steven Wirsz, Yibo Liu, Zhenghao Hu, Chang Zhu,* **Gokulkrishna P Menon**, *Brendan Dolan-Gavitt, Adam Doupé, Ruoyu Wang, Yan Shoshitaishvili, Tiffany Bao*, in Proceedings of the ACM CCS.

2022   **Arbiter: Bridging the Static and Dynamic Divide in Vulnerability Discovery on Binary Programs**, *Jayakrishna Vadayath, Kyle Zeng, Nicolaas Weideman,* **Gokulkrishna P Menon**, *Yanick Fratantonio, Davide Balzarotti, Adam Doupé, Tiffany Bao, Ruoyu Wang, Christophe Hauser, and Yan Shoshitaishvili*, in Proceedings of the USENIX Security Symposium.

Achievements

2020   **CVE 2019-14769, 14770, 14771**, *Discovered two Cross Site Scripting and one Remote code execution bug in Backdrop Content Management System.*

2019   **NullCON CTF**, *As part of Shellphish, secured first position.*

2018   **BlackHat Asia**, *Awarded scholarship to attend BlackHat Asia 2018.*

2016   **CSAW Capture The Flag Finals**, *As part of team bi0s, secured first runners up position.*

Workshops

2017   **Web Application Security workshop**, *As part of Team bi0s, conducted a two-day workshop in Sree Narayana College of Engineering*, Kochi, India.

2017   **InCTF**, *Organized and authored challenges for the International Capture the Flag contest in 2015 and 2017 as part of Team bi0s..*

2016   **PSG College Of Technology**, *Workshop on Web Application Security for Professionals as part of annual PSG Tech Cyber Security awareness week*, Coimbatore, India.

2021–2023   **Open-Source Contribution**, *Contributed to and maintained the open-source binary analysis framework Patcherex. I have also improved Phuzzer, a Python wrapper for interacting with fuzzers such as AFL.*

2018   **Privacy badger extension**, *Developed a Chrome extension that offers protection against browser fingerprinting and Spectre attacks. The extension was open-sourced and is based on the Web-privacy/Privacy-Extension GitHub repository.*