# Deeraj Nagothu, Ph.D.

Research Scientist, Intelligent Fusion Technology

deeraj.nagothu@intfusiontech.com (607)-761-3956

https://deerajnagothu.com https://github.com/deerajnagothu

https://scholar.google.com/citations?user=xBeaGnMAAAAJ&hl


## Research Interests

- Digital Multimedia Authentication, Deep Learning, Information Assurance, Network and Web Security.
- Network Virtualization,Software Defined Networking, and Enhanced SATCOM.
- Artificial General Intelligence Alignment and Safety Research.

## Education

2017 – 2023 ◇ **Ph.D, Electrical and Computer Engineering**, Binghamton University-SUNY, Binghamton, NY, USA.
Dissertation title: *Lightweight Multimedia Authentication at the Edge using Environmental Fingerprint*
Advisor: Dr. Yu Chen

2015 – 2016 ◇ **MS, Electrical and Computer Engineering**, Binghamton University-SUNY, Binghamton, NY, USA.
Thesis title: *iCrawl: A high interaction client honeypot system.*
Advisor: Dr. Andrey Dolgikh

2011 – 2015 ◇ **B.Tech, Electronics and Communications Engineering**, SASTRA University, Tamil Nadu, India.

## Research Experience

2023 – Present ◇ **Research Scientist.** Intelligent Fusion Technology Inc. (IFT), Germantown, MD, USA.

2018 – 2023 ◇ **Graduate Research Assistant** SUNY Research Foundation, Binghamton University, Binghamton, NY, USA.

## Teaching Experience

Graduate Instructor ◇ **Network Computer Security (EECE-480F),** Spring 2016 - Spring 2020.

Teaching Assistant ◇ **Cyber Physical Systems (EECE-480A),** Fall 2016 - Spring 2017.

◇ **Cryptography and Information Security (EECE-405/560),** Fall 2020.

◇ **Linear Algebra and Engg Programming (EECE-212),** Spring 2021.

## Skills

Coding ◇ Python, C/C++, C#, Shell, Bash, MATLAB, Powershell, SQL, LaTeX, Neo4j and Cypher.

Network Security ◇ DHCP, SSH, VPN, DNS, Port-Forwarding, DMZ N/W, NMAP scan, Pentesting using Metasploit framework, OpenDaylight for SDN, LibreNMS and Cacti Server.

Virtualization ◇ ESXi, Vyos, Cisco Nexus, HyperV, Xen, OpenStack, OpenMano, Docker, Proxmox.

Web Dev ◇ HTML, CSS, JavaScript, Flask Web Server, React and Jekyll

Languages ◇ Strong reading, writing and speaking competencies for English, Hindi, Telugu, Tamil.

Misc. ◇ Academic Research Mentor, Teaching, Professional Training, and Consultation.

# Selected Research Publications

## Journal Articles

1 **Nagothu**, **D.**, Xu, R., Chen, Y., Blasch, E., & Aved, A. (2022a). Defakepro: Decentralized deepfake attacks detection using enf authentication. *IT Professional*, *24*(5), 46–52. doi:10.1109/MITP.2022.3172653

2 **Nagothu**, **D.**, Xu, R., Chen, Y., Blasch, E., & Aved, A. (2022b). Deterring deepfake attacks with an electrical network frequency fingerprints approach. *Future Internet*, *14*(5), 125. doi:10.3390/fi14050125

3 Xu, R., **Nagothu**, **D.**, & Chen, Y. (2021a). Decentralized video input authentication as an edge service for smart cities. *IEEE Consumer Electronics Magazine*, *10*(6), 76–82. doi:10.1109/MCE.2021.3062564

4 Xu, R., **Nagothu**, **D.**, & Chen, Y. (2021b). Econledger: A proof-of-enf consensus based lightweight distributed ledger for iovt networks. *Future Internet*, *13*(10), 248. doi:10.3390/fi13100248

5 **Nagothu**, **D.**, Chen, Y., Aved, A., & Blasch, E. (2021). Authenticating video feeds using electric network frequency estimation at the edge. *EAI Endorsed Transactions on Security and Safety*, *"7"*(24). doi:10.4108/eai.4-2-2021.168648

6 **Nagothu**, **D.**, Chen, Y., Blasch, E., Aved, A., & Zhu, S. (2019). Detecting malicious false frame injection attacks on surveillance systems at the edge using electrical network frequency signals. *Sensors (Basel).*, *19*(11), 1–19. doi:10.3390/s19112424

## Conference Proceedings

1 **Nagothu**, **D.**, Xu, R., Chen, Y., Blasch, E., & Aved, A. (2021a). Detecting compromised edge smart cameras using lightweight environmental fingerprint consensus. In *Proceedings of the 19th acm conference on embedded networked sensor systems* (pp. 505–510). doi:10.1145/3485730.3493684

2 **Nagothu**, **D.**, Xu, R., Chen, Y., Blasch, E., & Aved, A. (2021b). Defake: Decentralized enf-consensus based deepfake detection in video conferencing. In *Ieee 23rd international workshop on multimedia signal processing*. doi:10.1109/MMSP53017.2021.9733503

3 **Nagothu**, **D.**, Schwell, J., Chen, Y., Blasch, E., & Zhu, S. (2019). A study on smart online frame forging attacks against video surveillance system. In *Proc. spie - int. soc. opt. eng.* (Vol. 11017). doi:10.1117/12.2519005

4 **Nagothu**, **D.**, Xu, R., Nikouei, S. Y., & Chen, Y. (2019). A microservice-enabled architecture for smart surveillance using blockchain technology. In *2018 ieee int. smart cities conf. isc2 2018*. doi:10.1109/ISC2.2018.8656968

## Book Chapters

1 Xu, R., **Nagothu**, **D.**, & Chen, Y. (2023). Ecom: Epoch randomness-based consensus committee configuration for iot blockchains. In K. Daimi, I. Dionysiou, & N. El Madhoun (Eds.), *Principles and practice of blockchains* (pp. 135–154). doi:10.1007/978-3-031-10507-4_7

2 **Nagothu**, **D.**, Poredi, N., & Chen, Y. (2022). Evolution of attacks on intelligent surveillance systems and effective detection techniques. doi:10.5772/intechopen.105958

3 **Nagothu**, **D.**, Xu, R., Nikouei, S. Y., Zhao, X., & Chen, Y. (2020). Smart surveillance for public safety enabled by edge computing. (pp. 409–433). doi:10.1049/PBPC033E_ch19

## Books

1 **Nagothu**, **D.**, & Chen, Y. (2023). *Authentication of video feeds in smart edge surveillance networks* (C. Olson, Ed.). Bellingham, Washington 98227-0010: SPIE Press.

### Dissertation and Thesis

1 **Nagothu, D.** (2023). *Lightweight Multimedia Authentication at the Edge Using Environmental Fingerprint* (Ph.D. State University of New York at Binghamton, United States – New York). ISBN: 9798380566988. Retrieved October 28, 2023, from https://www.proquest.com/docview/2872097834/abstract/A49AAD7CD800446BPQ/1

2 **Nagothu, D.** (2016). *Icrawl: A high interaction client honeypot system* (M.S. State University of New York at Binghamton, United States – New York).

## Selected Professional Activities

### Reviewer for Journals

- SPIE JEI, Elsevier Computer and Security, IEEE Transactions TPAML, DSC, Service Computing, IEEE Access and Expert Systems with Applications.

### Reviewer for Conferences

- IEEE INFOCOM, GLOBECOM, CISS, CSSMA, WiMob, ISC2, CloudNet and ICC, ACM BlockSys .

## Miscellaneous Service

### Awards and Achievements

2020 - **GSEA**, Graduate Student Award for Excellence in Teaching.

### Academic Mentor

2018-2023 - **ECE Capstone Design Projects**.

2019-2020, 2023-2024 - **Master's Thesis Advisor**

### Memberships

- **IEEE, SPIE, and ACM**.