

Benchadi Djafer Yahia M

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🔗 [GitHub Profile](#)

🌐 [LinkedIn Profile](#)

PhD student @University of Tsukuba

EDUCATION

University of Tsukuba, Japan

Doctoral Program. System and Information Engineering, [Computer vision laboratory](#)
Research (Ongoing): Malware Analysis, Machine Learning, Subspace Representation

Tsukuba, Japan
Expected Mar '24

University of Mohamed Khider, Algeria

Ms.Engg. in Network and Telecommunication
Coursework: Information Security, Advanced Signal Processing, Telecom System, IP Routing

Biskra, Algeria
Sep 2015 - Jun 2018

University of Mohamed Khider, Algeria

B.Engg. in Science and Technology, Computer Science
Coursework: Data Structures and Algorithms, Electronics, Software Engineering, Compilers

Biskra, Algeria
Sep 2018 - Jun 2020

EXPERIENCE

VERIMAG Lab, France

Research visitor

Grenoble, France
Oct 2023 - Dec 2023

- Joined [VERIMAG](#) laboratory at the University of Grenoble, France as a PhD visitor.
- The research focused on enhancing image-based malware analysis through modern DNNs.
- Achieving state-of-the-art results. [AINA24 Conference](#) under review. (Reference in [3])
- Vision-based method detection of malware and vulnerabilities at the application code level.

UD Trucks .Ltd, Japan

Research Intern

Saitama, Japan
Jan 2022 - Jul 2022

- Cyber Security for Automotive ([Digitalization Solution & IT Department](#)): Worked on mechanism of OTA (Over The Air) updates, Security process, Software Update (SW), Firmware Over the Air Update (FOTA/OTA) and Threat Assessment and Remediation Analysis (TARA).

National Communication Directorate of Batna

Network Engineering Intern

Batna, Algeria
Jun 2021 - Dec 2021

- Network administrator in enterprise department, worked on Cisco routers and switches, experience in MPLS, OSPF, BGP (basic IP networking technology). Optimizing network performance and enhancing security. Diagnose and resolve network issues, minimizing downtime, and improving overall network efficiency.

National Air Navigation Establishment (ENNA)

Telecommunications System Engineer Intern

Batna, Algeria
Jan 2019 - Mar 2019

- Aircraft VHF radio, Aeronautical safety Radionavigation/Telecom, Air Traffic Control.

Algeria Telecom Corporation

Telecommunication Intern

Biskra, Algeria
Mar 2018 - Apr 2018

- Contributed to the deployment of network infrastructure. 4G/5G configuration for high-speed wireless data communication, Dense wavelength-division multiplexing, and its applications in modern telecommunications (DWDM).

INSFP Cisco Academy

Cisco Candidate Trainee (Cisco Certified Network Associate CCNA 200-125)

Biskra, Algeria
Dec 2017 - Nov 2019

- Configuration of infrastructure components: firewalls, routers, and switches.
- Network troubleshooting and daily network maintenance. Manage and maintain IP addresses, VLANs, WAN lines.
- Routing, switching, and security protocols. QoS, IPv6, and ACL.

PROJECTS

Malware Classification

github.com/Djaferbenchadi/Malware_classification_ksm

- Implemented Kernel Subspace Method (KSM) for malware classification based on representative digital images.
- Results published in [IEEE access](#).

Malware Spoofing (Binary)

github.com/Djaferbenchadi/Malware_analysis_binary

- Developed a method based on Kernel Constrained Subspace Method (KCSM) and Random Fourier Features (RFF).
- Tackled malware spoofing task, distinguishing between malware and Benign (safe) files.
- Results published in [MVA2023](#).

Malware Visualization (Behavior)

github.com/Djaferbenchadi/OSA_KDS

- Proposed novel visualization framework (OSA_KDS) for understanding malware behavior.
- Framework implemented using Occlusion Sensitivity Analysis and Kernel Difference Subspace.
- Provided insights into malware features, aiding in reverse-engineering and cybersecurity analysis.
- Results published on [IEEE access](#).

SKILLS

Programming Languages and Libraries: Python; NumPy; SciPy; Pandas; PyTorch; TensorFlow; Keras; Scikit-learn; MATLAB.
Computational Methods: Machine Learning (ML); Deep Learning (DL); Neural networks; Research; Foundation models; GenAI;
Software Engineering; Data Science;
Tools: IDA, Hex, Computer architecture (x86, ARM, and RISC-V)
Languages: English, French, Japanese, Arabic

Certificates

- Cisco CCNA 200-125 (Routing and Switching) 「ICND1」+「ICND2」, ID: WGJH72TD4LB41RC.
- Quality of service (QoS) for IPv6.

ACADEMIC ACTIVITIES

- Machine Vision and Application Conference (MVA) 2023, Poster Presentation.
- General Organization committee of [CollaboTICS](#) joint workshop 2022.
- [CollaboTICS](#) workshop 2022, Oral and Poster Presentation.
- Participated in and assisted at PhD Visitation in [VERIMAG](#) laboratory at University of Grenoble, France.

FELLOWSHIP

- Awarded PhD Japanese Government scholarship - MEXT - 2021.04 until 2024.03

PUBLICATIONS

- [1] [Benchadi Djafer Yahia M](#), Bojan Batalo, Kazuhiro Fukui, "Efficient Malware Analysis Using Subspace-Based Methods on Representative Image Patterns", IEEE Access, Volume 11,10244023, 2023.
- [2] [Benchadi Djafer Yahia M](#), Bojan Batalo, Kazuhiro Fukui, "Malware detection using Kernel Constrained Subspace Method", 2023 18th International Conference on Machine Vision and Applications (MVA), pp. 1-5, 2023.
- [3] *Hamzah Al-Qadasi, *[Benchadi Djafer Yahia M](#), Salim Chehida, Kazuhiro Fukui, Saddek Bensalem, "Neural Network Innovations in Image-Based Malware Classification: A Comparative Study", The 38-th International Conference on Advanced Information Networking and Applications (AINA-2024).