

Do Hai Son

Date of birth: 28/08/1998

Gender: Male

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Address: Hanoi, Vietnam

Research interests

Cyber Security, Blockchain Technology, Wireless Communications, System Identification, IoT/IIoT System.

Education

2020 – 2023 **VNU University of Engineering and Technology** – Hanoi, Vietnam
Master degree in Telecommunications Engineering
GPA: 3.88/4.0.

2016 – 2020 **VNU University of Engineering and Technology** – Hanoi, Vietnam
BSc degree in Electronics and Communications Engineering

Employment experience

Aug 2020 – Present **Advanced Institute of Engineering and Technology (AVITECH), VNU University of Engineering and Technology** – Hanoi, Vietnam
Role: Researcher

Sep 2022 – Dec 2022 **PRISME Laboratory, École polytechnique de l'université d'Orléans (Polytech Orléans), France**
Role: Internship student

Research experience

May 2022 – Present **Agricultural IoT based on Edge computing**
Responsibility: An agricultural IoT security framework based on authentication, data preservation, and encryption

Jun 2020 – Present **System identification: from blind to informed paradigm**
Responsibility: We aim to develop an “InfoSysID Toolbox” which provides a set of tools to analyse, evaluate and design complicated systems, specially in wireless communication.

- Jul 2021 – Present **Channel estimation using side information for massive MIMO systems**
 Responsibility: We consider the antenna structures of massive MIMO and integrate side information (e.g., DoA, DoD) to enhance the performance channel of estimation algorithms.
- Jun 2020 – Nov 2022 **Cyber-attack detection and information security in Industry 4.0**
 Responsibility: We aim to provide tools to enhance cyber-security in Industry 4.0, i.e., blockchain-based Smart Grid, collaborative learning for cyberattacks detection.
- Oct 2019 – Jun 2020 **Direction of Arrival on SDR**
 Responsibility: We implemented MUSIC algorithm on GNU Radio and SDR devices, i.e., bladeRFx115).
- Mar 2019 – Oct 2019 **WiFi Map Indoor Positioning System**
 Responsibility: We focused on analyzing RSSI data using traditional machine learning methods (i.e., SVM). We then deployed and verified in a robot using Arduino KIT.

Teaching experience

- Sep-Dec/2021 **Teaching assistant, ELT 3243: Principles of Communication** (VNU University of Engineering and Technology)
- Jul-Aug/2021 **Teaching assistant, ELT 2035: Signals and systems** (VNU University of Engineering and Technology)
- Jan-Jun/2021 **Teaching assistant, ELT 3144: Digital Signal Processing** (VNU University of Engineering and Technology)

Publications

- 2023 [C1] **Do Hai Son** and Tran Thi Thuy Quynh, “Impact Analysis of Antenna Array Geometry on Performance of Semi-blind Structured Channel Estimation for massive MIMO-OFDM systems,” in *IEEE Statistical Signal Processing Workshop (SSP)*, Hanoi, Vietnam, pp. 314-317, 2023.

- [C2] Tran Viet Khoa, **Do Hai Son**, Dinh Thai Hoang, Nguyen Linh Trung, Tran Thi Thuy Quynh, Diep N. Nguyen, Nguyen Viet Ha, and Eryk Dutkiewicz, “Real-time Cyberattack Detection with Collaborative Learning for Blockchain Networks,” in *IEEE Global Communications Conference: Communication & Information Systems Security (Globecom 2023 CISS)*, pp. 1-6, Dec. 2023. (submitted)
- [C3] **Do Hai Son**, Karim Abed-Meraim, Tran Trong Duy, Nguyen Linh Trung, and Tran Thi Thuy Quynh, “On the Semi-Blind Mutually Referenced Equalizers for MIMO Systems,” in *2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, Nov. 2023. (submitted)
- [J1] Tran Viet Khoa, **Do Hai Son**, Dinh Thai Hoang, Nguyen Linh Trung, Tran Thi Thuy Quynh, Diep N. Nguyen, Nguyen Viet Ha, Eryk Dutkiewicz, “Collaborative Learning for Cyberattack Detection in Blockchain Networks,” *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, pp. 1–12, Jul. 2023. (submitted) [<https://arxiv.org/abs/2203.11076>]
- [J2] Tran Viet Khoa, **Do Hai Son**, Chi-Hieu Nguyen, Dinh Thai Hoang, Nguyen Linh Trung, Diep N. Nguyen, Tran Thi Thuy Quynh, Trong-Minh Hoang, Nguyen Viet Ha, and Eryk Dutkiewicz, “Securing Blockchain Systems: A Novel Collaborative Learning Framework for Transactions and Smart Contracts Attack Detection,” *IEEE Transactions on Information Forensics and Security*, pp. 1–13, Jul. 2023. (submitted)
- 2022 [J1] Bui Minh Tuan, Tran Viet Khoa, **Do Hai Son**, Nguyen Linh Trung, Tran Thi Thuy Quynh, Nguyen Ngoc Hoa, and Nguyen Viet Ha, “A New Framework for Cyber Risk Assessment for Industry 4.0 and Recommendations for Vietnam,” *REV Journal on Electronics and Communication*, pp. 1-16, Aug. 2022. (submitted)
- [B1] Tran Thi Thuy Quynh, Ngo K. Hoang, Nguyen Van Ly, **Do Hai Son**, and Nguyen Linh Trung, “Thiết lập nền tảng SDR cho hệ thống OFDM,” trong *Truyền thông chuyển tiếp hai chiều: Lý thuyết và Thực nghiệm*, Nhà xuất bản Đại học Quốc gia Hà Nội, pp. 145-228, Jul. 2022. (preprint)
- 2021 [C1] **Do Hai Son**, Tran Thi Thuy Quynh, Tran Viet Khoa, Dinh Thai Hoang, Nguyen Linh Trung, Nguyen Viet Ha, Dusit Niyato, Diep N. Nguyen, and Eryk Dutkiewicz, “An effective framework of private Ethereum blockchain network for smart grid,” in *2021 International Conference on Advanced Technologies for Communications (ATC)*, Ho Chi Minh City, Vietnam, 2021. [[Best Paper Award](#)]

- [C2] **Do Hai Son**, Tran Thi Thuy Quynh, “Synchronize multi-SDRs to implement DoA system,” in *The 24th National Conference on Electronics, Communications and information Technology*, Hanoi, Vietnam, 2021.
- 2019 [C1] **Do Hai Son**, Tran Duc Manh, and Tran Thi Thuy Quynh, “WiFi Maps Indoor Positioning System,” in *The 22nd National Conference on Electronics, Communications and information Technology*, Hanoi, Vietnam, 2019.

Honors and scholarships

- 2022 Top 13 AI Tech Matching on the AI4VN 2022: “Hệ thống thông minh phát hiện tấn công sử dụng công nghệ AI trên mạng Blockchain”.
- 2021 Best Student Paper Award of 2021 International Conference on Advanced Technologies for Communications (ATC).
- 2020 Excellent Thesis Award (VNU University of Engineering and Technology)
Awarded to the best undergraduate theses from the school.
- 2019 Certificate of merit for excellent student awarded (VNU University of Engineering and Technology)
- 2019 Scholarship for the excellent student awarded (VNU University of Engineering and Technology)
Awarded to top 5 students from the class.

Technical skills

Programming languages

Proficient in: C/C++, Python, Matlab, Javascript, Solidity

Familiar with: C#, Go

Hardware

Software Define Radio (SDR), IoT Gateway Home/Industrial, Jetson/BeagleBone/Arduino/ESP8266, IoT sensors

Languages

English: 2023 VSTEP certificate (7.0/10.0).