

INFORMATION ON DOCTORAL THESIS

1. Full name : Quach Xuan Truong
2. Sex: Male
3. Date of birth: 03/08/1978
4. Place of birth: Ninh Binh
5. Admission decision number: 1006/QĐ-CTSV. Dated 07/ 12/ 2015
6. Changes in academic process: None
7. Official thesis title: Secrecy Performance of Wireless Communications at the Physical Layer
8. Major : Communications and Computer Networks
9. Code: 9480102.01
10. Supervisors: Dr. Tran Hung. Mälardalen University, Sweden
Dr. Tran Truc Mai. VNU-University of Engineering & Technology
11. Summary of the **new findings** of the thesis:
 - Research methods to analyze the secure and reliable communication for cognitive radio networks in fading channels. Researching methods to optimize energy harvesting time and selecting channels for the energy harvesting cognitive radio network to ensure performance system and information security.
 - Research on evaluating security performance in CCRN when applying collaborative communication techniques to enhance QoS and information security.
 - Math modeling, proposed power allocation policies for proposed network models under the interference and security constraints.
 - Simulation examines the accuracy of formulas obtained in power allocation policies for research system models
 - Evaluation and conclusions about the relationship between interference, security, and RF energy harvesting constraints. Consider the interactions of system parameters on the performance system and propose solutions to improve the security and performance system
12. Practical applicability, if any:
13. Further research directions, if any:
14. Thesis-related publications:

- [1] Truong Xuan Quach, Hung Tran, Elisabeth Uhlemann, G.Kaddoum, and T.Q. Anh (2017), "Power allocation policy and performance analysis of secure and reliable communication in cognitive radio networks", *Wireless Networks*, 25(4), pp. 1477-1489.
- [2] Hung Tran, Truong Xuan Quach, Elisabeth Uhlemann, Ha-Vu Tran (2017), "Optimal energy harvesting time and power allocation policy in CRN under security constraints from eavesdroppers", *IEEE 28th Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC)*, pp. 1-8.
- [3] Truong Xuan Quach, Hung Tran, Elisabeth Uhlemann, Mai Tran Truc (2017), "Secrecy performance of cognitive cooperative industrial radio networks", *22nd IEEE International Conference on Emerging Technologies and Factory Automation (ETFA)*, pp. 1-8.
- [4] Truong Xuan Quach, Hung Tran, Elisabeth Uleman, Mai Tran Truc (2020), "Secrecy performance of cooperative cognitive radio networks under joint secrecy outage and primary user interference constraint", *IEEE Access*, 8, pp. 18442-18455.