Duc Tran Le

+1-819-244-2824
tran.duc.le@uqtr.ca
Scholar Link
Researchgate
SCV DUT

1. EDUCATION

Doctor of Philosophy (2014 – 2018)

- **Major**: *Systems, networks and telecommunication devices (Computer Science)*
- Federal State Budget-Financed Educational Institution of Higher Education The Bonch-Bruevich Saint Petersburg State University of Telecommunications, Saint-Petersburg.
- **Thesis title**: "*Mechanisms for ensuring QoS in unlicensed frequencies for high-density Wi-Fi networks*"
- **Supervisor**: O. A. Simonina (Scholar Link)

Degree of Engineer (2009 – 2014)

- Major: *Multi-channel telecommunication systems*
- Federal State Budget-Financed Educational Institution of Higher Education The Bonch-Bruevich Saint Petersburg State University of Telecommunications, Saint-Petersburg.
- Project title: "*Analysis of interconnection in SDN technology*"

2. RESEARCH INTERESTS

Currently, I focus on network security, malware analysis, malware spreading, detection, and applying AI for solving security issues.

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Ongoing projects:

- Malware Family Classification based on Hashing Techniques
- Classification of Mobile Malware Families Using Features Created by Generative Adversarial Network
- Image-based Deep Learning Approach for Detection and Classification of Ransomware
- Linux Malware Detection with Federated Learning Approach
- A blockchain-based authentication approach for IoT network

3. AREAS OF TEACHING EXPERTISE

- Computer networks
- Malware analysis
- Network security
- Network penetration testing

4. TEACHING EXPERIENCE

Lecturer in Department of Computer Networking and Communication
University of Science and Technology – The University of Danang

- Computer networks (from 2019 to present)
- Network administration (from 2019 to present)
- Malware analysis (from 2019 to present)
- Network security (from 2020 to present)
- Network penetration testing (from 2022)

5. GRANTS

2021

- *Grant for young researcher of University of Science and Technology – The University of Danang: "**Malware spreading model for Wi-Fi networks**" – Code: T2021 – 02 – 06.*
    - *Leader: **Duc Tran Le***
    - *Member: MSc Nguyen Thi Le Quyen (Link)*

2019

- *Nafosted 2019: "**AI-Driven Cyberattacks Detection for Future SDN-based Networks**" – Code: 102.01-2019.322.*
    - *Leader: Tri Gia Nguyen Scholar Link*
    - *Member: Hai Hoang Nguyen, **Duc Tran Le**, Dinh Thai Hoang (Link) Trung Phan Van (Link)*

6. AWARDS

2020

- Certificate of Outstanding Paper Award - The 22nd International Conference on Advanced Communications Technology (ICACT 2020), Pyeongchang, Korea

- B award - Potential scientific and technological activities - 2019 - 2020. Number: 2645/QĐ-ĐHBK.

7. PUBLICATIONS

Journals

[J1] **D. Tran Le**, T. T. Tran, K. Q. Dang, R. Alkanhel and A. Muthanna, "Malware Spreading Model for Routers in Wi-Fi Networks," in IEEE Access, vol. 10, pp. 61873-61891, 2022, doi: 10.1109/ACCESS.2022.3182243.

[J2] **Le, Duc Tran**, Khanh Quoc Dang, Quyen Le Thi Nguyen, Soha Alhelaly, and Ammar Muthanna. "A Behavior-Based Malware Spreading Model for Vehicle-to-Vehicle Communications in VANET Networks." Electronics 10, no. 19 (2021): 2403.

[J3] Nguyen, Tri Gia, Trung V. Phan, Dinh Thai Hoang, Hai Hoang Nguyen, and **Duc Tran Le**. "DeepPlace: Deep reinforcement learning for adaptive flow rule placement in Software-Defined IoT Networks." Computer Communications 181 (2022): 156-163.

[J4] **Le, Duc Tran**, Tri Gia Nguyen, and Thi Thu Thao Tran. "The 1-millisecond challenge-tactile internet: From concept to standardization." Journal of Telecommunications and the Digital Economy 8, no. 2 (2020): 56-93.

[J5] **Le, Duc Tran**, Minh Huu Dao, and Quyen Le Thi Nguyen. "Comparison of machine learning algorithms for DDoS attack detection in SDN." Информационно-управляющие системы 3 (106) (2020): 59-70.

[J6] **Le, Duc Tran**, Tri Gia Nguyen, Olga Simonina, Mikhail Buinevich, and Andrei Vladyko. "A Priority-Based Multichannel Mac to Support the Non-Safety Applications in SCH Interval at RSU in V2I Communication." Transport and Telecommunication 19, no. 4 (2018): 269-283.

[J7] **Duc, L. T.**, Olga Simonina, Mikhail Buinevich, and Andrei Vladyko. "A multi-criteria priority-based V2I communication for information dissemination at RSU in VANET." JP Journal of Heat and Mass Transfer 15, no. S (2018): 195-203.

[J8] **Ле, Чан Дык**, and Ольга Александровна Симонина. "EMATMM: эффективный метод планирования трафика для механизма мульти-опроса в высокоплотных WLAN." Современная наука: актуальные проблемы теории и практики. Серия: Естественные и технические науки 7-8 (2017): 17-26.
// English: EMATMM: Effective traffic planning method for the multipolling mechanism in high-density WLANs.

[J9] **Ле, Ч. Д.**, and O. A. Симонина. "Механизм мультиопроса на основе приоритизации для WLAN с высокой плотностью устройств." Труды учебных заведений связи 3, no. 1 (2017): 80-92.
//English: The multipolling mechanism in high-density IEEE 802.11 networks.

[J10] **Ле, Ч. Д.**, and O. A. Симонина. "Механизм мультиопроса на основе приоритизации для WLAN с высокой плотностью устройств." Труды учебных заведений связи 3, no. 1 (2017): 80-92.
//English: The multipolling mechanism based on the prioritization for WLAN with high density of devices.

[J11] **Дык, Ле Чан**. "Анализ производительности высокоплотной wlan с многими точками доступа посредством моделирования в Opnet." T-Comm-Телекоммуникации и Транспорт 11, no. 3 (2017): 56-61.
//English: Performance analysis of the high dense wlan network with multiple access points using OPNET modeler

[J12] **Ле, Чан Дык**, and Ольга Александровна Симонина. "Механизм приоритезации для обеспечения минимизации задержки в условиях конкурентной среды в сетях Wi-Fi с плотным распределением устройств." Информационные системы и технологии 95, no. 3 (2016): 99.
//English: The mechanism of prioritization to ensure minimize delays in the competitive environment in the Wi-Fi networks with dense distribution of devices.

Conferences

[C1] Do, Phuc Hao, Truong Duy Dinh, **Duc Tran Le**, Lyudmila Myrova, and Ruslan Kirichek. "An Efficient Feature Extraction Method for Attack Classification in IoT Networks." In 2021 13th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT), pp. 194-199. IEEE, 2021.

[C2] **Le, Duc Tran**, Truong Duy Dinh, Ruslan Kirichek, Egor Filin, and Alexander Shestakov. "A Combined Attack Scenario to Exploit the Join Procedure of LoRaWAN." In 2021 13th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT), pp. 188-193. IEEE, 2021.

[C3] Nguyen, Hai Hoang, Tri Gia Nguyen, Dinh Thai Hoang, **Duc Tran Le**, and Trung V. Phan. "CARS: Dynamic Cyber-attack Reaction in SDN-based Networks with Q-learning." In 2021 International Conference on Advanced Technologies for Communications (ATC), pp. 156-161. IEEE, 2021.

[C4] Pham, Van Dai, Phuc Hao Do, **Duc Tran Le**, and Ruslan Kirichek. "LoRa Link Quality Estimation Based on Support Vector Machine." In International Conference on

Distributed Computer and Communication Networks, pp. 92-102. Springer, Cham, 2021.

[C5] Dinh, Truong Duy, Vladimir Vishnevsky, **Duc Tran Le**, Ruslan Kirichek, and Andrey Koucheryavy. "Determination of subscribers coordinates using flying network for emergencies." In 2021 23rd International Conference on Advanced Communication Technology (ICACT), pp. 1-10. IEEE, 2021.

[C6] **Duc Tran Le**, Nguyen Duc Tai, Le Ba Luong, Van Dai Pham, Ruslan Kirichek. “Analysis of Network Security Issues in the Join Procedure of LoRaWAN.” In proceeding of 24th International Conference on Distributed Computer and Communication Networks: Control, Computation, Communications. Pages: 468-476. Year 2021.

[C7] Pham, Van Dai, Phuc Hao Do, **Duc Tran Le**, and Ruslan Kirichek. "LoRa Link Quality Estimation Based on Support Vector Machine." In International Conference on Distributed Computer and Communication Networks, pp. 92-102. Springer, Cham, 2021.

[C8] Pham, Van Dai, **Duc Tran Le**, Ruslan Kirichek, and Alexander Shestakov. "Research on Using the AODV Protocol for a LoRa Mesh Network." In International Conference on Distributed Computer and Communication Networks, pp. 149-160. Springer, Cham, 2020.

[C9] Pham, Van Dai, **Duc Tran Le**, and Ruslan Kirichek. "Evaluation of Routing Protocols for Multi-hop Communication in LPWAN." In Internet of Things, Smart Spaces, and Next Generation Networks and Systems, pp. 255-266. Springer, Cham, 2020.

[C10] Kirichek, Ruslan, Truong Duy Dinh, Maxim Zakharov, **Duc Tran Le**, and Andrey Koucheryavy. "Positioning methods based on flying network for emergencies." In 2020 22nd International Conference on Advanced Communication Technology (ICACT), pp. 245-250. IEEE, 2020.

[C11] Dinh, Truong Duy, **Duc Tran Le**, Thi Thu Thao Tran, and Ruslan Kirichek. "Flying ad-hoc network for emergency based on IEEE 802.11 p multichannel MAC protocol." In International Conference on Distributed Computer and Communication Networks, pp. 479-494. Springer, Cham, 2019.

[C12] **Le, Tran Duc.** "The multipolling mechanism based on the prioritization for WLAN network with multiple access points." In 2017 International Conference on Information Networking (ICOIN), pp. 24-29. IEEE, 2017.

Others

[B1] Supporting quality of service in wireless communication: a manual for laboratory works (Russian Edition: Обеспечение качественных показателей беспроводной связи: учебно-методическое пособие по выполнению лабораторных работ)
B.E. Korochin. Co-authors: **T.D. Le**, E.A. Lesnhikov, O.A. Simonina. Publisher: The Bonch-Bruevich Saint-Petersburg State University of Telecommunications - SpbGut, Russia, 2019.

[B2] Mechanisms for supporting QoS of wireless package networks in unlicensed band (Russian Edition: Механизмы Обеспечения QoS: В беспроводных пакетных сетях нелицензируемого диапазона) Chủ biên: **Le Tran Duc**. Publisher: Lap Lambert Academic Publishing, 2019.