Quang-Trung Luu

ANSA Lab, Rm. C7-E709, 1 Dai Co Viet Str., Hanoi 100000, Vietnam trung.luuquang@hust.edu.vn
luuquangtrung.github.io luuquangtrung luuquangtrung +84 8 66 47 76 81

Research interests

Computing: Cloud/edge computing, deadline-aware task scheduling
Intelligence: Applied AI/ML for networking (deep learning, deep reinforcement/reinforcement learning)
Networking: 5G and beyond, open radio access network (O-RAN), network slicing, IoT

Academic Experiences

2023–pres **Lecturer**, Hanoi University of Science and Technology ..... Hanoi,Vietnam
2021–2022 **Postdoctoral Fellow**, French National Centre for Scientific Research (CNRS) ..... Toulouse, France
2017–2021 **Doctoral Fellow**, CentraleSupélec, Paris-Saclay University ..... Paris, France
2017–2020 **Research Engineer**, Nokia Bell Labs ..... Paris, France
04–09/2017 **Research Intern**, Inria & Ecole Normale Supérieure ..... Lyon, France

Education

2017–2021 **Ph.D. in Information & Communication Networks**, *CentraleSupélec–Paris-Saclay University*
Thesis: *Dynamic Control and Optimization of Wireless Virtual Networks*
Advisors: Prof. Michel Kieffer (Paris-Saclay) and Dr. Sylvaine Kerboeuf (Nokia Bell Labs)

2016–2017 **M.Sc. in Multimedia Networking**, *Paris-Saclay University & Télécom Paris*
Thesis: *Optimization of 802.11-based Wireless Networks*
Advisors: Profs. Anthony Busson and Isabelle Guérin-Lassous (Univ. Lyon 1)

2015–2016 **M.Sc. in Antennas and Telecom Devices**, *Paris-Saclay University*
Thesis: *Wireless Power Transfer for Implantable Medical Devices*
Advisors: Profs. Antoine Diet, Yann Le Bihan (Paris-Saclay), and Stavros Koulouridis (Univ. Patras)

2008–2013 **B.Sc. in Electronics and Telecoms**, *Hanoi University of Science and Technology (HUST)*
Thesis: *Optimization of Resonator Configuration for Wireless Power Transmission Systems*
Advisors: Profs. Cao-Minh Ta and Yem Vu-Van (HUST)

Granted Projects

2025–2028 **Developing distributed video processing system for smart cities**
Funded by the National Program KC-01
Role: Co-investigator. Budget: $\sim \$391,000$

2025–2026 **Resource optimization for network slicing in next-generation mobile networks**
Funded by Vietnamese Ministry of Education and Training (MOET)
Role: Principal investigator (PI). Budget: $\sim \$23,600$

2024–2026 **Enhancing the performance of 6G Open RAN integrating edge computing and network slicing**
Funded by Vietnamese National Foundation for Science & Technology Development (NAFOSTED)
Role: Co-investigator (PI). Budget: $\sim \$71,000$

2023–2025 **Optimizing resource allocation for O-RAN slices in next-generation communication systems**
Funded by Hanoi University of Science and Technology
Role: Principal investigator (PI). Budget: $\sim \$11,500$

2023–2026 **Typhoon formation prediction using machine learning**
Funded by VinIF Foundation
Role: Co-investigator. Budget: $\sim \$166,000$

Supervision

Doctoral Students

2024–2028 **Thanh Pham**, Hanoi University of Science and Technology (co-advised with Prof. Trung-Kien Dao)
Topic: Fault-tolerant distributed mutual-exclusion algorithms for mobile ad-hoc networks

2023–2027 **Tuan-Vu Truong**, VinUniversity (co-advised with Prof. Van-Dinh Nguyen)
Topic: Resouce allocation for network slicing in open radio access network (Open RAN)

2023–2027 **Minh-Tuong Nguyen**, VinUniversity (co-advised with Prof. Van-Dinh Nguyen)
Topic: Resource allocation for serverless functions in mobile edge cloud environments

Master's Students

2024–2026 **Kim-Hoan Do**, Hanoi University of Science and Technology
Topic: Resource allocation for Open RAN slicing

2023–2025 **Trung-Toan Nguyen**, Hanoi University of Science and Technology
Topic: Embedding of network slices with flexible VNF order

2021–2022 **Jobayer Morshed & Abdel Ouahd Alouane**, Institut Polytechnique de Paris
Topic: Scheduling coflows in datacenter networks.

2020–2021 **Xavier Goeman & Carlos Guzman**, Institut Polytechnique de Paris
Topic: Embedding algorithms for network slices dedicated to multimedia services

Teaching

Summary:

5+ years of teaching experience at various institutions: Paris-Saclay University[(1)], HUST[(2)], VinUniversity[(3)], Troy University[(4)], and Vietnam-Japan University[(5)].

Teaching languages: English[(1, 2, 3, 4)], French[(1)], and Vietnamese[(2, 5)]

(ET4070) **Fundamentals of Data Communication**, Hanoi University of Science and Technology 2024
(ET4262E) **Multimedia Data Compression and Coding**, Hanoi University of Science and Technology 2024
(ET2022) **Technical Writing and Presentation**, Hanoi University of Science and Technology 2024
(ET4260Q) **Multimedia**, Hanoi University of Science and Technology 2023
(AC4010) **Virtual Reality**, Hanoi University of Science and Technology 2023, 2024
(AC4020) **Augmented Reality**, Hanoi University of Science and Technology 2023, 2024
(CSE3030) **Computer Network and Communications**, Vietnam-Japan University 2023, 2024
(CS4451) **Computer Security**, Troy University 2024
(CS3310) **Foundations of Computer Science**, Troy University 2023

(ELEC4040) **Digital Communication System design**, VinUniversity 2022
(ELEC3020) **Electromagnetic Fields and Waves**, VinUniversity 2022
(MN915) **Joint Research Project**, Paris-Saclay University and Télécom Paris 2020, 2021
(G10) **Communication Numérique (Digital Communications)**, Paris-Saclay University 2020

Honors and Awards

Dec. 2023 **Best Poster Award**, *Asian Internet Engineering Conference (AINTEC)*
May 2022 **Best PhD Thesis on Distributed Systems and Networks**, *GDR-RSD & ACM SigOps France*
Oct. 2020 **Publication Award**, *Nokia Bell Labs*
Dec. 2019 **Travel Grant**, *Global Young Vietnamese Scholars Network*
Dec. 2018 **Student Travel Grant Award**, *IEEE Global Communications Conference (IEEE GLOBECOM)*
2017–2020 **CIFRE Fellowship**, *French National Association for Technical Research (ANRT)*
2015–2016 **IDEX Master's Scholarship**, *Paris-Saclay University*
May 2013 **Student Research Prize (first runner-up)**, *Hanoi University of Science and Technology*

Skills

Techniques: Mathematical programming, optimization, applied AI/ML (e.g., RL/DRL, GNN)
Coding: Python, MATLAB, C/C++, Bash scrips
Tools: git, ns-3, CPLEX, Jupyter notebook, Microsoft Office, LaTeX, InkScape
Libraries: NetworkX, NumPy, Pandas, PyTorch, scikit-learn, TensorFlow, matplotlib
Languages: *Vietnamese* (mother tongue), *English* (fluent), *French* (fluent)

Academic Services

- **Technical Conference/Workshop Chair:** Co-chair, Main Track on Communication Networks and Systems and Special Session on Recent Advances in B5G/6G Networks, 10th IEEE International Conference on Communications and Electronics (ICCE), Da Nang, Vietnam
- **Technical Program Committee (TPC):** Symposium On Information and Communication Technology (SoICT); International Conference on Networks (ICN); IEEE International Conference on Communications and Electronics (ICCE)
- **Regular reviewer for journals:** IEEE Journal on Selected Areas in Communications (JSAC); IEEE/ACM Transactions on Networking (TON); IEEE Transactions on Network and Service Management TNSM); IEEE System Journal (ISJ); IEEE Communications Letters; Elsevier Computer Communications.
- **Regular reviewer for conferences** IEEE International Conference on Communications (ICC); IEEE Vehicular Technology Conference (VTC); IEEE International Conference on Advanced Technologies for Communications (ATC).

Other Activities

Since 2023 **Organizer**, *Vietnam Summer School of Science (VSSS)*, Quy Nhon, Vietnam
Since 2020 **Founder & admin**, telecom-vn—a group of Vietnamese researchers in networking and telecoms
Nov. 2020 **Organizer**, *Global Young Vietnamese Scholars Network*
Sept. 2020 **Jury member**, *Annual Ph.D Student Workshop of CentraleSupélec* (session "AI and networking")
Since 2015 **Invited lecturer**, *Vietnam Summer School of Science (VSSS)*

Publications

Research profile on:

- Google Scholar: https://scholar.google.com/citations?user=GqQcLAIAAAAJ
- ORCID: https://orcid.org/0000-0002-3848-7825
- HAL Archives Ouvertes: https://cv.archives-ouvertes.fr/quang-trung-luu
- ResearchGate: https://www.researchgate.net/profile/Quang-Trung-Luu

In preparation

(p_1) Quang-Vinh Tran, Quang-Diep Pham, Kieu-Ha Phung, Thi-Thom Tran, and **Quang-Trung Luu**, "A Learning Approach for User Localization and Movement Prediction with Limited Information," to be submitted to *IEEE Wireless Communications and Networking Conference (WCNC)*, 2025.

(p_2) **Quang-Trung Luu**, Do-Minh Tran, Minh-Thanh Nguyen, Tai-Hung Nguyen, Van-Dinh Nguyen, and Michel Kieffer, "Network Slice Embedding with Flexible Configurations in 5G Networks and Beyond," to be submitted to *IEEE/ACM Transactions on Networking*, 2024.

(p_3) **Quang-Trung Luu**, Minh-Thanh Nguyen, Michel Kieffer, Tuan-Anh Do, and Van-Dinh Nguyen, "Network Slice Embedding with Flexible VNF Order: A Branch-and-Bound Approach," to be submitted to *IEEE Transactions on Network and Service Management*, 2024.

(p_4) **Quang-Trung Luu**, Cong-Viet Hoang, Ha-Son Nguyen, and Dang-Vu Nguyen, "Timirax: Joint Acceptance Rate and Completion Time Optimization for Coflows in Datacenters," to be submitted to *IEEE Networking Letters*, 2025.

(p_5) Phong Nguyen and **Quang-Trung Luu**, "Flow field reconstruction from sparse sensor measurement using physics-aware recurrent convolution neural network," 2025.

Patents

(b_1) Sylvaine Kerboeuf, **Quang-Trung Luu**, Michel Kieffer, and Alexandre Mouradian, "Slice Resource Provisioning Method Addressing Multiple Slice Demands with SLA Guarantee," *US Patent 11,431,562 B2*, filed 07 December 2018, issued 16 December 2021, granted 30 August 2022.

Journal papers (peer-reviewed)

(j_1) Xuan Hoang Nguyen, Van-Dinh Nguyen, **Quang-Trung Luu**, Toan Dinh Gian, and Oh-Soon Shin, "Robust WiFi Sensing-based Human Pose Estimation Using Denoising Autoencoder and CNN with Dynamic Subcarrier Attention," *IEEE Internet of Things Journal*, 2024 (in review).

(j_2) Rachid El-Azouzi, Francesco De Pellegrini, Afaf Arfaoui, Cédric Richier, Jeremie Leguay, **Quang-Trung Luu**, Youcef Magnouche, and Sebastien Martin, "Semi-distributed Coflow Scheduling in Datacenters," in *IEEE Transactions on Network and Service Management*, 2024, DOI: 10.1109/TNSM.2024.3395992. (E-ISSN: 1932-4537, Scopus Q1, IF 5.3).

(j_3) Olivier Brun, Rachid El-Azouzi, **Quang-Trung Luu**, Francesco De Pellegrini, Balakrishna J. Prabhu, and Cédric Richier, "Weighted Scheduling of Time-Sensitive Coflows," in *IEEE Transactions on Cloud Computing*, 2024, DOI: 10.1109/TCC.2024.3384514 (E-ISSN: 2168-7161, arXiv: 2303.17175, Scopus Q1, IF 6.5).

(j_4) **Quang-Trung Luu**, Sylvaine Kerboeuf, and Michel Kieffer, "Admission Control and Resource Provisioning for Prioritized Slice Requests with Uncertainties," in *IEEE Transactions on Network and Service Management*, 2022, DOI: 10.1109/TNSM.2022.3160352. (E-ISSN: 1932-4537, hal: hal-03614028, arXiv: 2203.09367, Scopus Q1, IF 5.3)

(j_5) **Quang-Trung Luu**, Sylvaine Kerboeuf, and Michel Kieffer, "Uncertainty-Aware Resource Provisioning for Network Slicing," in *IEEE Transactions on Network and Service Management*, vol. 18, no. 1, pp. 79-93, Mar. 2021, DOI: 10.1109/TNSM.2021.3058139 (E-ISSN: 1932-4537, hal: hal-03418308, arXiv: 2006.01104, Scopus Q1, IF 5.3)

(j_6) **Quang-Trung Luu**, Sylvaine Kerboeuf, Alexandre Mouradian, "Coverage-Aware Resource Provisioning Method for Network Slicing" in *IEEE/ACM Transactions on Networking*, vol. 28, no. 6, pp. 2393-2406, Dec. 2020, DOI: 10.1109/TNET.2020.3019098 (E-ISSN: 1558-2566, hal: hal-03097001, arXiv: 1907.09211v3, Scopus Q1, IF 3.7)

Conference papers (peer-reviewed)

(c_1) **Quang-Trung Luu**, Minh-Thanh Nguyen, Tai-Hung Nguyen, Michel Kieffer, Van-Dinh Nguyen, Quang-Lap Luu, and Trung-Toan Nguyen, "Admission Control and Embedding of Network Slices with Flexible VNF Order," in *Proc. 20th International Conference on Network and Service Management (CNSM)*, Prague, 2024 (to appear).

(c_2) Duc-Manh Nguyen, Duc-Hai Do, Thanh-Hai Tran, and **Quang-Trung Luu**, "Real-Time Pig Counting Embedded System via Video Object Detection and Tracking," in *Proc. International Conference on Advanced Technologies for Communications (ATC)*, Ho Chi Minh City, 2024 (to appear).

(c_3) Tuan-Vu Truong, **Quang-Trung Luu**, and Van-Dinh Nguyen, Efficient Resource Allocation Framework for Network Slicing-enabled Open RAN," *IEEE International Conference on Communications and Electronics (ICCE)*, Danang, Vietnam, 2024, pp. 747-752, doi: 10.1109/ICCE62051.2024.10634735 (E-ISSN: 2836-4392).

(c_4) Minh-Thanh Nguyen, **Quang-Trung Luu**, Tai-Hung Nguyen, Do-Minh Tran, Tuan-Anh Do, Kim-Hoan Do, and Van-Hieu Nguyen, "Accelerating Network Slice Embedding with Reinforcement Learning," *IEEE International Conference on Communications and Electronics (ICCE)*, Danang, Vietnam, 2024, pp. 78-83, doi: 10.1109/ICCE62051.2024.10634634. (E-ISSN: 2836-4392)

(c_5) **Quang-Trung Luu**, Olivier Brun, Rachid El-Azouzi, Francesco De Pellegrini, Balakrishna J. Prabhu, and Cédric Richier, "DCoflow: Deadline-Aware Scheduling Algorithm for Coflows in Datacenter Networks," in *Proc. IFIP Networking Conference*, Catania, June 2022, pp. 1-9.

(c_6) **Quang-Trung Luu**, Sylvaine Kerboeuf, and Michel Kieffer, "Foresighted Resource Provisioning for Network Slicing," in *Proc. IEEE International Conference on High Performance Switching and Routing (HPSR)*, Paris, June 2021, pp. 1-8.

(c_7) **Quang-Trung Luu**, Sylvaine Kerboeuf, Alexandre Mouradian, and Michel Kieffer, "Radio Resource Provisioning for Network Slicing with Coverage Constraints," in *Proc. IEEE International Conference on Communications (ICC)*, Dublin, Ireland, June 2020, pp. 1-6. (Bell Labs Publication Award).

(c_8) **Quang-Trung Luu**, Michel Kieffer, Alexandre Mouradian, and Sylvaine Kerboeuf, "Aggregated Resource Provisioning for Network Slices," in *Proc. IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, Dec. 2018, pp. 1-6 (IEEE ComSoc Student Travel Award).

(c_9) **Quang-Trung Luu**, Stavros Koulouridis, Antoine Diet, Yann Le Bihan, and Lionel Pichon, "Investigation of Inductive and Radiating Energy Harvesting for an Implanted Biotelemetry Antenna," in *Proc. European Conference on Antennas and Propagation (EuCAP)*, Paris, Mar. 2017.

(c_{10}) Antoine Diet, Stavros Koulouridis, Yann Le Bihan, **Quang-Trung Luu**, Olivier Meyer, Lionel Pichon, and Marc Biancheri-Astier, "Sub-GHz Inductive Power Transmission from Helical Coils for Implanted Medical Devices,"

in *Proc. IEEE International Workshop on Antenna Technology (iWAT)*, Athens, Greece, Mar. 2017.

(c_{11}) **Quang-Trung Luu**, Duc-Hung Tran, Bao-Huy Nguyen, Yem Vu-Van, and Cao-Minh Ta, "Design of the Resonators for Coupled Magnetic Resonance based Wireless Power Transmission Systems," in *Proc. 2nd Vietnam Conference on Control and Automation (VCCA)*, Da Nang, pp. 724-729, Nov. 2013.

Workshops/Posters

(w_1) Kim-Hoan Do, **Quang-Trung Luu**, Tai-Hung Nguyen, Minh-Thanh Nguyen, and Tuan-Anh Do, "Accelerating Network Slice Embedding with Reinforcement and Deep Reinforcement Learning," *18th Asian Internet Engineering Conference (ACM AINTEC)*, Hanoi, Dec. 2023 (Best Poster Award).

(w_2) **Quang-Trung Luu**, Michel Kieffer, Alexandre Mouradian, and Sylvaine Kerboeuf, "Resource Provisioning for Network Slices with Coverage Constraints," *ANR MAESTRO-5G Workshop on Orchestration of 5G Networks and Beyond*, CentraleSupélec, Gif-sur-Yvette, Dec. 2020.

(w_3) Antoine Diet, Stavros Koulouridis, Yann Le Bihan, **Quang-Trung Luu**, Olivier Meyer, Lionel Pichon, M. Biancheri-Astier, "RF Link for Implanted Medical Devices (IMDs) and Sub-GHz Inductive Power Transmission," in *Journées d'Etude sur la Télésanté (JetSan)*, 6ème édition, Bourges, France, May 2017.

References

Prof. Michel Kieffer
Paris-Saclay University
3 rue Joliot Curie, 91190 Gif-sur-Yvette
michel.kieffer@centralesupelec.fr

Dr. Sylvaine Kerboeuf
Senior researcher, Nokia Bell Labs
7 route de Villejust, 91620 Nozay
sylvaine.kerboeuf@nokia-bell-labs.com

Prof. Rachid El-Azouzi
University of Avignon
339 ch. des Meinajaries, 84000 Avignon
rachid.elazouzi@univ-avignon.fr