Quang-Trung Luu

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Research interests

Network optimization, resource allocation, multimedia services, operations research

Experiences

03/2021–present **Postdoctoral Fellow**, *French National Centre for Scientific Research (CNRS)* Toulouse, France
- Study the problem of coflow scheduling and resource allocation in data center networks
- Design of methods to optimize coflow acceptance rate and coflow completion time
- Implementation of complex test cases to verify the proposed algorithms

11/2017–11/2020 **Research Engineer**, *Nokia Bell Labs* Paris, France
- Design resource provisioning algorithms for network slicing in 5G
- Developing a provisioning method robust to the uncertainties of network and demands
- Participating to Bell Labs activities: cooperative projects (e.g., MAESTRO-5G), seminars, demonstrations at the Nokia 5G Campus Event, patent drafting

04/2017–09/2017 **Research Intern**, *Inria & Ecole Normale Supérieure* Lyon, France
- Study of the data frame aggregation mechanism in Wi-Fi networks (802.11 and 80.221n)
- Optimizing network throughput using Markov chain-based algorithms

01/2015–06/2015 **Engineer**, *Samsung Mobile R&D Center* Hanoi, Vietnam
- Analysis, design and development of Android and Tizen applications
- Preparing scenarios and test plans in accordance with project objectives
- Implementing automated tests to prove the functioning of the products

08/2013–08/2014 **Engineer**, *Viettel Network* Hanoi, Vietnam
- Management of fiber optic networks, minimization of the number of devices used in the network (e.g. splitters, amplifiers)

Education

2017–2021 **Ph.D. in Information & Communication Networks**, *CentraleSupélec–Paris-Saclay University*, France
- Thesis: *Dynamic Control and Optimization of Wireless Virtual Networks*
- Industrial Ph.D program financed by French government (ANRT) and Nokia Bell Labs
- Advisors: Prof. M. Kieffer (Paris-Saclay) and Dr. S. Kerboeuf (Nokia Bell Labs)

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

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

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

Teaching

Year	Course	Program	Language	Hours
2020–2021	Digital communications	M.Sc. in Networking and Telecoms*	French	24h
2020–2021	Joint research project	M.Sc. in Multimedia Networking‡	English	30h
2021–2022	Joint research project	M.Sc. in Multimedia Networking‡	English	30h

(*institution:* **Paris-Saclay University*, ‡*Télécom Paris – Institut Polytechnique de Paris*) Total : **84h**

Skills

Techniques: mathematical programming, operations research, optimization, machine learning
Programming: `Python`, `MATLAB`, `C/C++`, Bash scrips
Tools: `git`, `ns-3`, CPLEX, Jupyter notebook, Microsoft Office, LaTeX, InkScape
Libraries: matplotlib, NumPy, TensorFlow, Pandas, scikit-learn, NetworkX
Languages: *Vietnamese* (mother tongue), *English* (fluent), *French* (fluent)

Honors, Awards, and Grants

Best PhD Dissertation Award on Distributed Systems and Networks, by GDR-RSD et ACM SigOps France, May 2022
ENSA Publication Award, by Nokia Bell Labs, Oct. 2020
Travel Grant, by the Global Young Vietnamese Scholars Network, Dec. 2019
Student Travel Grant, by IEEE Communications Society, Dec. 2018
CIFRE Fellowship, by the French National Association for Technical Research, 2017–2020
International Master's Scholarship, by Paris-Saclay University, 2015-2016
Student Research Prize (first runner-up), by the Hanoi University of Science and Technology, May 2013

Activities

Organizer, *Global Young Vietnamese Scholars Network*, Hanoi, Vietnam, Nov. 2020
Jury member, *Annual Ph.D Student Workshop of CentraleSupélec* (session "AI and networking"), Sept. 2020
Member of technical committee, AlgoTel 2021, CoRes 2021, ICN 2020, ICN 2021
Reviewer

Journals : *IEEE Journal on Selected Areas in Communications*, *IEEE Trans. on Network and Service Management*
Conferences : ICN 2020, AlgoTel 2021, CoRes 2021

Invited lecturer, *Vietnam Summer School of Science (VSSS)*, Hanoi, Vietnam, Aug. 2015

Publications

Patents

(b_1) S. Kerboeuf, Q.-T. Luu, M. Kieffer, and A. Mouradian, Slice Resource Provisioning Method Addressing Multiple Slice Demands with SLA Guarantee, *US Patent 17,299,138* (déposé le 10 décembre 2018 par Nokia Bell Labs)

Peer-reviewed journal papers

(j_1) Q.-T. Luu, S. Kerboeuf, and M. Kieffer, "Admission Control and Resource Provisioning for Prioritized Slice Requests with Uncertainties," *IEEE Transactions on Network and Service Management*, 2022 (hal-03614028).

(j_2) Q.-T. Luu, S. Kerboeuf, and M. 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. (hal-03418308)

(j_3) Q.-T. Luu, M. Kieffer, A. Mouradian, and S. Kerboeuf, "Coverage-Aware Resource Provisioning Method for Network Slicing," in *IEEE/ACM Transactions on Networking*, vol. 28, no. 6, pp. 2393-2406, Dec. 2020. (hal-03097001)

Peer-reviewed conference papers

(c_1) Q.-T. Luu, O. Brun, R. El-Azouzi, F. De Pellergrini, and B.-J. Prabhu, "Lightweight Schedulers for Minimizing the Weighted Number of Late Coflows," *Int'l Symposium on Distributed Computing (DISC)*, Georgia, USA, Oct. 2022 (submitted).

(c_2) Q.-T. Luu, O. Brun, R. El-Azouzi, F. De Pellergrini, and B.-J. Prabhu, "DCoflow: Deadline-Aware Scheduling Algorithm for Coflows in Datacenter Networks," *IFIP Networking Conference*, Catania, June 2022 (accepted, to appear).

(c_3) Q.-T. Luu, S. Kerboeuf, and M. 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_4) Q.-T. Luu, S. Kerboeuf, A. Mouradian, and M. 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_5) Q.-T. Luu, M. Kieffer, and A. Mouradian, and S. 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_6) Q.-T. Luu, S. Koulouridis, A. Diet, Y. Le Bihan, and L. 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_7) A. Diet, S. Koulouridis, Y. Le Bihan, Q.-T. Luu, O. Meyer, L. Pichon, and M. 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

Workshops/Posters

(w_1) Q.-T. Luu, M. Kieffer, A. Mouradian, and S. 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_2) A. Diet, S. Koulouridis, Y. LeBihan, Q.-T. Luu, O. Meyer, L. 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.

Demonstrations

(de_1) B. Orlandi, S. Kerboeuf, F. Faucheux, J.-L. Lafragette, A. Boubendir, and Q.-T. Luu, "Network Slicing Made Easy! From Graph-based Design to Automated Deployment of Network Slices in 5G," *Nokia 5G Smart Campus Event*, Nozay, 2018 (in partnership with Orange Labs).

References

Dr. Michel Kieffer
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michel.kieffer@centralesupelec.fr

Dr. Sylvaine Kerboeuf
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7 route de Villejust, 91620 Nozay
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