

Nguyen Quang Hieu

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EDUCATION

University of Technology Sydney, New South Wales, Australia

- Ph.D candidate in Electrical and Data Engineering Nov 2021 – now
 - Supervisor: Dr. Hoang Dinh
 - Focus: Wireless Communications, Reinforcement Learning, Deep Learning, Optimization

Hanoi University of Science and Technology (HUST), Hanoi, Vietnam

- Bachelor in Electronics and Telecommunications Engineering Aug 2013 – Jun 2018
 - Cumulative GPA: 3.01/4 (7.72/10)
 - Thesis (score): Integrating Trickle timing in Software-Defined WSNs for energy efficiency (9.8/10)
 - Supervisor: Assoc. Prof. Nguyen Huu Thanh
 - Focus: Wireless Sensor Networks, Energy-efficient routing/scheduling, Software Defined Networking

RESEARCH EXPERIENCE

Computer Networks and Communications Lab (CNCL), School of Computer Science and Engineering, Nanyang Technological University

- Research Engineer Apr 2019 – Oct 2021
 - Supervisor: Prof. Dusit Niyato
 - Focus: Resource allocation in wireless networks, Deep Reinforcement Learning, Blockchain.
- Activities:
 - Develop a deep reinforcement learning-based algorithm to optimize energy, latency, and CPU resources in blockchain-based/distributed machine learning networks.
 - Develop energy forecasting models for solar panels system using deep learning.

Future Internet Laboratory, School of Electronics and Telecommunications, HUST

- Undergraduate Research Student Aug 2016 – Mar 2019
 - Supervisors: Assoc. Prof. Nguyen Huu Thanh
 - Focus: Internet of Things, SDN/NFV, Network Security
- Activities:
 - Develop a routing mechanism and design a software controller in Wireless Sensor Networks based on Software Defined Networking for energy-efficient routing.
 - Optimize data scheduling in Wireless Sensor Networks based on Time Slotted Channel Hopping (TSCH) for energy efficiency and data reliability. Proposed algorithm is implemented in a real-world testbed which consists of 70 sensors.

PUBLICATIONS

JOURNALS

- [J8] N. Q. Hieu, D. T. Hoang, D. Niyato, D. N. Nguyen, D. I. Kim, and A. Jamalipour, “Joint power allocation and rate control for rate splitting multiple access networks with covert communications,” *IEEE Transactions on Communications*, vol. 71, no. 4, pp. 2274-2287, Apr. 2023 (IF=6.16, Q1).
- [J7] N. Q. Hieu, D. N. Nguyen, D. T. Hoang, and E. Dutkiewicz, “When virtual reality meets rate splitting multiple access: A joint communication and computation approach,” *IEEE Journal on Selected Areas in Communications*, vol. 41, no. 5, pp. 1536-1548, May 2023 (IF=13.08, Q1).
- [J6] N. Q. Hieu, D. T. Hoang, D. Niyato, P. Wang, D. In Kim, and C. Yuen, “Transferable deep reinforcement learning framework for autonomous vehicles with joint radar-data communications,” *IEEE Transactions on Communications*, vol. 7, no. 8, Aug. 2022 (IF=6.16, Q1).
- [J5] N. Q. Hieu, T. T. Anh, N. C. Luong, D. Niyato, D. I. Kim, and E. Elmroth, “Resource management for blockchain-enabled federated learning: A deep reinforcement learning approach,” *IEEE Networking Letters*, vol. 4, no. 3, Sep. 2022.
- [J4] K. S. H. Ong, W. Wang, N. Q. Hieu, D. Niyato, and T. Friedrichs, “Predictive maintenance model for IIoT-based manufacturing: A transferable deep reinforcement learning approach”, *IEEE Internet of Things Journal*, vol. 9, no. 17, Sep. 2022 (IF=10.21, Q1).
- [J3] N. Q. Hieu, D. T. Hoang, N. C. Luong, and D. Niyato, “Optimal power allocation for rate splitting communications with deep reinforcement learning”, *IEEE Wireless Communications Letters*, vol. 10, no. 12, Oct 2021 (IF=4.66, Q1).
- [J2] N. V. Tam, N. Q. Hieu, N. T. T. Van, N. C. Luong, D. Niyato, and D. I. Kim, “Adaptive task offloading in coded edge computing: A deep reinforcement learning approach”, *IEEE Communications Letters*, vol. 25, no. 12, Sep 2021 (IF=3.44, Q1).

- [J1] N. Q. Hieu, D. T. Hoang, N. C. Luong, and D. Niyato, "iRDRC: A real-time intelligent dual-functional radar-communication system for automotive vehicles", *IEEE Wireless Communications Letters*, vol. 9, no. 12, Aug 2020 (IF=4.66, Q1).

CONFERENCES

- [C5] N. Q. Hieu, D. T. Hoang, D. N. Nguyen, and E. Dutkiewicz, "Toward BCI-enabled Metaverse: A Joint Radio and Computing Resource Allocation Approach," *IEEE Global Communications Conference*, accepted.
- [C4] N. Q. Hieu, N. H. Chu, D. T. Hoang, D. N. Nguyen, and E. Dutkiewicz, "A unified resource allocation framework for virtual reality streaming over wireless networks," *IEEE International Conference on Communications*, Rome, Italy, May 2023.
- [C3] N. V. Huynh, N. Q. Hieu, N. H. Chu, D. N. Nguyen, D. T. Hoang, and E. Dutkiewicz, "Defeating eavesdroppers with ambient backscatter communications," *IEEE Wireless Communications and Networking Conference*, 2023 (accepted).
- [C2] N. Q. Hieu, T. T. Huong, N. T. Hung, N. Q. Thu and N. H. Thanh, "A low-power, high reliable data collection scheme for wireless sensor networks", *2019 International Conference on Advanced Technologies for Communications (ATC)*, Hanoi, Vietnam, Oct 2019, pp. 258-263.
- [C1] N. Q. Hieu, N. Huu Thanh, T. T. Huong, N. Quynh Thu and H. V. Quang, "Integrating trickle timing in software defined WSNs for energy efficiency", *2018 IEEE Seventh International Conference on Communications and Electronics (ICCE)*, Hue, Vietnam, Jul 2018, pp. 75-80.

PREPRINTS

- [P2] H. Y. Zhu, N. Q. Hieu, D. T. Hoang, D. N. Nguyen, and C.T. Lin, "A Human-Centric Metaverse Enabled by Brain-Computer Interface: A Survey," submitted to *IEEE Communications Surveys & Tutorials* [arXiv].
- [P1] N. Q. Hieu, D. N. Nguyen, D. T. Hoang, and E. Dutkiewicz, "Enhancing Immersion and Presence in the Metaverse with Over-the-Air Brain-Computer Interface", submitted to *IEEE Transactions on Wireless Communications* [arXiv].

TEACHING	<ul style="list-style-type: none"> ▪ Tutor for IoT Security (42037), UTS 	Feb 2023
AWARDS	<ul style="list-style-type: none"> ▪ IEEE ComSoc Student Travel Grant, IEEE ICC ▪ ARC DECRA Funded Project Scholarship ▪ UTS International Research Scholarship (UTS IRS) ▪ 4th place, 35th Student's Scientific Research Contest, HUST 	Apr 2023 Nov 2021 Nov 2021 May 2018
CERTIFICATIONS	<ul style="list-style-type: none"> ▪ Research Summer School Certificate - British Council & Newton Fund ▪ Certificate in CCNA Switching and Routing (CISCO) 	Aug 2018 Jul 2017
PROFESSIONAL ACTIVITIES	<ul style="list-style-type: none"> ▪ Peer review: <ul style="list-style-type: none"> • IEEE Journals on Selected Areas in Communications (JSAC) • IEEE Communications Surveys and Tutorial (COMST) • IEEE Transactions on Wireless Communications (TWC) • IEEE Transactions on Communications (TCOM) • IEEE Internet of Things Journal (IOTJ) • IEEE Transactions on Cognitive Communications and Networking (TCCN) • IEEE Transactions on Vehicular Technology (TVT) • IEEE Wireless Communications Letters (WCL) • IEEE Communications Letters (CL) ▪ TPC member: <ul style="list-style-type: none"> • IEEE 97th Vehicular Technology Conference: VTC2023-Spring, 20-23 June 2023, Florence, Italy • IEEE Wireless Communications and Networking Conference (WCNC), 26–29 March, 2023, Glasgow, Scotland, UK • IEEE Wireless Communications and Networking Conference (WCNC), 10-13 April, 2022, Austin, TX, USA 	
LANGUAGES	<ul style="list-style-type: none"> ▪ English: Fluent (speaking, listening, reading, writing). ▪ Vietnamese: Native. 	

SKILLS

- Machine Learning: Deep Reinforcement Learning, Deep Learning
- CCNA Switching and Routing
- Programming languages: Python, Java, C/C++
- Simulation tools: Matlab, Cooja, NS2
- Engineering Software/OS: Linux, Contiki OS
- Office tools: Latex, Microsoft Office Tools

REFERENCES

- **Hoang Dinh, Ph.D.**
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