

Research Interests

- (1) Proximity-based Sensing and Networking, (2) Physiological Signals with Mobile and Wearable Devices,
(3) IoT Systems with Artificial Intelligence

Education

Sept. 2015 - Dec. 2020	Hong Kong University of Science and Technology (HKUST) Ph.D. Electronic and Computer Engineering Supervisor: Prof. James She	Clear Water Bay, Hong Kong
Oct. 2010 - July. 2014	Multimedia University (MMU) B.E. (Hons) Electronics majoring in Telecommunications (1 st Class Honour) Supervisor: Dr. Ayman Abd El-Saleh	Cyberjaya, Malaysia

Publications Journals

1. P. C. Ng, P. Spachos, S. Gregori, and K. Plataniotis, "Epidemic exposure notification with smartwatch: A proximity-based privacy-preserving approach," *arXiv preprint arXiv:2007.04399*, 2021.
2. P. C. Ng, J. She, and P. Spachos, "Energy-Efficient Overlay Protocol for BLE Beacon-based Mesh Network," *IEEE Transactions on Mobile Computing*, pp. 1–1, 2020 (Submitted).
3. P. C. Ng, J. She, P. Spachos, and K. Plataniotis, "A Kernel Method to Nonlinear Location Estimation with RSS-based Fingerprint," *IEEE Transactions on Mobile Computing*, pp. 1–1, 2020 (Submitted).
4. P. C. Ng and J. She, "Remote Proximity Sensing with a Novel Q-learning on Bluetooth Low Energy Network," *IEEE Transactions on Wireless Communication*, pp. 1–1, 2020 (Submitted).
5. P. C. Ng, P. Spachos, and K. Plataniotis, "COVID-19 and Your Smartphone: BLE-based Smart Contact Tracing," *IEEE System Journal*, 2020 (Submitted).
6. P. C. Ng, J. She, and R. Rong, "Compressive RF Fingerprint Acquisition and Broadcasting for Dense BLE Networks," *IEEE Transactions on Mobile Computing*, pp. 1–1, 2020.
7. P. C. Ng, J. She, and R. Ran, "A Reliable Smart Interaction With Physical Thing Attached With BLE Beacon," *IEEE Internet of Things Journal*, vol. 7, no. 4, pp. 3650–3662, April 2020.
8. P. C. Ng and J. She, "Denoising-Contractive Autoencoder for Robust Device-Free Occupancy Detection," *IEEE Internet of Things Journal*, vol. 6, no. 6, pp. 9572–9582, Dec 2019.
9. P. C. Ng, J. She, and R. Ran, "A Compressive Sensing Approach to Detect the Proximity between Smartphones and BLE Beacons," *IEEE Internet of Things Journal*, pp. 1–1, 2019.
10. K. E. Jeon, J. She, P. Soonsawad, and P. C. Ng, "BLE Beacons for Internet of Things Applications: Survey, Challenges, and Opportunities," *IEEE Internet of Things Journal*, vol. 5, no. 2, pp. 811–828, April 2018.
11. P. C. Ng, J. She, and S. Park, "High Resolution Beacon-Based Proximity Detection for Dense Deployment," *IEEE Transactions on Mobile Computing*, vol. 17, no. 6, pp. 1369–1382, June 2018.
12. P. C. Ng, J. She, K. E. Jeon, and M. Baldauf, "When Smart Devices Interact With Pervasive Screens: A Survey," *ACM Trans. Multimedia Comput. Commun. Appl.*, vol. 13, no. 4, pp. 55:1–55:23, Aug. 2017.

Conferences

12. P. C. Ng, J. She, P. Spachos, and R. Ran, "A Fast Item Identification and Counting in Ultra-dense Beacon Networks," in *2020 IEEE Global Communications Conference (Globecom)*, Dec 2020, pp. 1–6.
13. P. C. Ng, J. She, and R. Ran, "Towards Sub-Room Level Occupancy Detection with Denoising-Contractive Autoencoder," in *2019 IEEE International Conference on Communications (ICC)*, May 2019, pp. 1–6.
14. P. C. Ng and J. She, "A Novel Overlay Mesh with Bluetooth Low Energy Network," in *2019 IEEE Wireless Communications and Networking Conference (WCNC)*, April 2019, pp. 1–6.
15. P. C. Ng, J. She, and S. Park, "Notify-and-interact: A Beacon-smartphone Interaction for User Engagement in Galleries," in *2017 IEEE International Conference on Multimedia and Expo (ICME)*, July 2017, pp. 1069–1074.
16. P. Soonsawad, K. E. Jeon, J. She, C. H. Lam, and P. C. Ng, "Maximizing Energy Harvesting with Adjustable Solar Panel for BLE Beacon," in *2019 International Conference on Internet of Things (iThings) and IEEE Green Computing and Communications (GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCom) and IEEE Smart Data (SmartData)*, July 2019, pp. 229–234.
17. C. H. Lam, P. C. Ng, and J. She, "Improved Distance Estimation with BLE Beacon Using Kalman Filter and SVM," in *2018 IEEE International Conference on Communications (ICC)*, May 2018, pp. 1–6.
18. L. Zhu, R. Ran, P. C. Ng, and J. She, "Using Generalized Similarity Filter to Enhance Proximity Detection for Sparse Beacon Deployment," in *2017 International Conference on Information and Communication Technology Convergence (ICTC)*, Oct 2017, pp. 433–438.

19. P. C. Ng, L. Zhu, J. She, R. Ran, and S. Park, "Beacon-based Proximity Detection using Compressive Sensing for Sparse Deployment," in *2017 IEEE 18th International Symposium on A World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, June 2017, pp. 1–6.
20. P. C. Ng, J. She, M. Cheung, and A. Cebulla, "An Images-Textual Hybrid Recommender System for Vacation Rental," in *2016 IEEE Second International Conference on Multimedia Big Data (BigMM)*, April 2016, pp. 60–63.
21. P. C. Ng, "Optimization of Spectrum Sensing for Cognitive Sensor Network using Differential Evolution Approach in Smart Environment," in *2015 IEEE 12th International Conference on Networking, Sensing and Control*, April 2015, pp. 592–596.

Professional Services

Visiting

1 Mar - 31 Aug, 2020	Research Exchange in Univeristy of Guelph (Host supervisor: Prof. Spachos's supervision)	Contact Tracing and Localization Projects	Canada
21 Feb - 22 Feb, 2017	Visiting Multimedia University for Creative Multimedia Projects (Host: Assoc. Prof. Dr. Wong Chee Onn)	Augmented Reality and Interactive Multimedia Performance	Malaysia

Volunteerism and Event Organization

8 Nov - 9 Nov, 2018	BLE beacons workshop for UG students from Chungbuk University	Idea	HKUST
4 Oct - 7 Oct, 2018	Asian Deans' Forum 2018 The Rising Stars Women In Engineering	Receptionist and Usher	HKUST
Mar., 2016	Big Data and Mobile Technologies for Smart Cities Seminar	Student Helper	Cyberport, HK

Paper Reviewing

2016 - current	Journal Papers: IEEE TMC, IEEE JIOT, IEEE TMM, ACM TOMM
2015 - current	Conference Papers: IEEE Globecom, IEEE WCNC, IEEE PIMRC, IEEE ICNSC

Honors and Awards

Mar 2020	HKUST Overseas Research Award: (ORA)	Guelph
Nov 2019	HKTIIT Post-Graduate Excellence Scholarships:	Hong Kong
Oct 2019	IEEE R10 Paper Contest Special Price for WIE: IEEE R10	Australia
2019/2020	SENG (School of Engineering) Academic Award:	HKUST
April 2019	IEEE ComSoc Student Travel Grant Award: IEEE WCNC 2019	Marrakech
April 2019	SmartSens Postgraduate Scholarship:	Hong Kong
2017/2018	SENG (School of Engineering) Top RPg Award:	HKUST
2015 - 2018	Postgraduate Studentship Award: every year	HKUST
Jul., 2017	Research Travel Grant Award: ICME, Hong Kong	HKUST
May., 2017	Research Travel Grant Award: WoWMoM, Macau	HKUST
Mar., 2016	Research Travel Grant Award: BigMM, Taipei	HKUST
Jan., 2015	Invention & Innovations Award: Malaysia Technology Expo 2015	Putrajaya
Dec., 2014	Shooting Star Award: Device Laboratory Appreciation Dinner	Petaling Jaya
Aug., 2014	Book Awards: MMU Convocation Ceremony 2014	Cyberjaya
2010 - 2014	Dean Awards: every semester, (Melaka & Cyberjaya Campuses)	MMU

Working Experiences

Teaching Assistant (HKUST)

2017/2018	ELEC 6910Q: Analytics and Systems for Social Media and Big Data Applications	HKUST
2015-2018	ELEC 1020: Media Production: Technology and Design	HKUST
2016/2017	ELEC 2400: Electronic Circuits	HKUST
2016/2017	ELEC 2300: Computer Organization	HKUST

R& D Engineer (Device Laboratory, Petaling Jaya)

2015	Networked Laundry: uses Arduino Yun as a gateway to connect multiple washers to multiple dryers	Project Leader
2015	Smart VoIP Intercom: uses Microchip as a backend for VoIP intercom application for smart condominium	Project Leader
2014	Interactive Turnstile: control and monitor the custom and traffic between Singapore and Malaysia	Supporting Member
2014	Hospital Interactive Kiosk: provides interactive information to the patient through interactive display	Supporting Member