

IP Wai Hung Andrew (Prof.)

PhD, CEng, MHKIE, SMIEEE

(I) Personal Particulars

Name: Prof. Andrew W. H. Ip (葉偉雄教授)
Email Address: wh.ip@polyu.edu.hk
Corresponding Address: Department of Industrial and Systems Engineering (ISE), The Hong Kong Polytechnic University (PolyU), Hung Hom, Kowloon, Hong Kong

(II) Positions *(past and present)*

Senior Research Fellow, Department of ISE, PolyU (09/2020 – Present)
Professor Emeritus and Adjunct Professor of Mechanical Engineering, University of Saskatchewan (03/2018 – Present)
Principal Research Fellow, Department of ISE, PolyU (09/2017 – 08/2020)
Independent Non Executive Director, Tong Kee (Holding) Limited (2018 – Present)
Independent Non Executive Director, Sunny Side Up (Holding) Limited (2000-Present)
Independent Non Executive Director, Ying Kee Tea House (Holding) Limited (2025-Present)
Associate Professor, Assistant Professor, Lecturer, Department of ISE, PolyU (06/1986 – 08/2017)
Associate Director, Integrated Graduate Development Scheme (IGDS), PolyU (1990 – 2017)

(III) Visiting / Honorary Positions

Distinguished Professor, Hunan University of Finance and Economics (2019 – Present)
Visiting Professor, South China Normal University (2014 – Present)
Visiting Professor, Shenzhen University (2019-Present)
Honorary Industrial Fellow, Warwick Manufacturing Group, The University of Warwick (Present)

(IV) Editorial Board Membership

Editor-in-Chief, *Enterprise Information Systems SCI indexed* (Taylor & Francis, 2014 – Present)
Editor-in-Chief and Founder, *International Journal of Engineering Business Management ESCI indexed* (SAGE, 2009 – Present)
Co-Editors-in-Chief, *International Journal of Software Science and Computational Intelligence* (IGI Global, 2020 – Present)

(V) Education Qualifications

- (i) Doctor of Philosophy (PhD), Loughborough University (U.K.) (1994)
- (ii) Master of Business Administration (MBA), Brunel University (U.K.) (1990)
- (iii) Master of Science (MSc) in Industrial Engineering, Cranfield University (U.K.) (1983)
- (iv) LLB (Hons), University of Wolverhampton (U.K.) (1999)

(VI) Brief Biosketch

Prof. Andrew W. H. Ip has more than 30 years of experience in teaching, research, education, industry and consulting. He received his PhD from Loughborough University (U.K.), MBA from Brunel University (U.K.), MSc in Industrial Engineering from Cranfield University (U.K.), and LLB (Hons) from the University of Wolverhampton (U.K.). After finishing postgraduate degrees in industrial engineering in the U.K., he came back to Hong Kong in the early 80s. His engineering research career began at that time with novel work in Industrial Engineering, Information Systems and Management Science.

He is now Professor Emeritus and Adjunct Professor of Mechanical Engineering of University of Saskatchewan, and Senior Research Fellow in the Department of Industrial and Systems Engineering of The Hong Kong Polytechnic University. He previously held various positions as Associate Professor, Assistant Professor in the same Department, and Associate Director of Integrated Graduate Development Scheme (IGDS) up to 2017.

Prof. Ip and his research team have over the years obtained around HK\$35 million funding support from industry and government, achieved much recognition from industry, such as international awards, patents and research outputs. In 2015, he and his research team are awarded “Gold Medal with the Congratulations of Jury” and “Thailand Award for Best International Invention from The National Research Council of Thailand (NRCT)” in the 43rd International Exhibition of Inventions of Geneva. And in 2013, he obtained Natural Science Award - Second Class, presented by the Ministry of Education of Mainland China. As a principal investigator, Prof. Ip has obtained over HK\$22 million external R&D grants including the Innovation and Technology Fund (ITF) with matching funds from Towngas Telecommunications Fixed Network Limited, Sino Parking Services Limited and V-Care Development Limited, the Teaching Company Scheme (TCS), research donations, collaborative research projects and General Research Fund grant.

In addition, Prof. Ip has published over 400 journal papers, conferences and books. His latest textbook entitled *Metaverse and Space Informatics* was published in 2024 by the HK PolyU Press. In early 2025 he published another book related to Space information Security entitles *Advanced Cyber Defense for Space Missions and Operations: Concepts and Applications* with IGI Global press. Other books published earlier related to Space technologies including- *IoT and Spacecraft Informatics* with Elsevier Aerospace Engineering Series; *IoT: The Basic, Applications and Case Studies* (in Chinese; ISBN: 978-986-925-960-6, and *System Design and Technology of Biomedical Internet of Things* (in Chinese; ISBN: 978-986-84784-7-3) have been published in 2016 and 2014 respectively. He is also the Editor-in-Chief of *Enterprise Information Systems* (SCI Indexed; SCI IF: 4.8), and the Editor-in-Chief and Founder of *International Journal of Engineering Business Management* (ESCI and SCOPUS Indexed IF 4.4) and editorial member of various international journals. He is a senior member of the Institute of Electrical and Electronics Engineers (IEEE), the Institution of Engineering and Technology (IET), the Institution of Mechanical Engineers (IMechE) and the Hong Kong Institution of Engineers (HKIE).

He has been the consultant for various companies and was independent non-executive directors of companies listed on Hong Kong Stock Exchange. He is Visiting Professor of South China Normal University, Civil Aviation University of China and the University of Electronic Science and Technology of China, and Honorary Fellow of the Warwick Manufacturing Group, The University of Warwick (U.K.).

(VII) Selected Publications

Prof. Ip has published more than 330 journal papers with over 250 papers indexed in Web of Science®, and also over 130 papers in conference proceedings, and has written books and invited book chapters. Prof. Ip's h-index, as indicated in Web of Science® scores 35 with over 4,700 citations for all SCI-indexed journal/conference papers, while his h-index, as indicated in Google Scholar, scores 55 with over 10,950 citations for all publications (up to 2025-Jan).

The following is his publication list for 2024/25. His latest publication is also available at:

https://www.researchgate.net/profile/WH_Ip

Prof. Ip's online bibliography can be found in: (ORCID) <http://orcid.org/0000-0001-6609-0713> or (Web of Science®) <http://www.researcherid.com/rid/J-2941-2013>

Year 2025

1. Wong, K.K., Chipusu, K., Ashraf, M.A., **Ip, A.W.H.**, & Zhang, C.W. (2025). In-space cybernetical intelligence perspective on informatics, manufacturing and integrated control for the space exploration industry. *J. Ind. Inf. Integr.*, 42, 100724.
2. Y.P. Tsang, C.H. Wu, **W.H. Ip**, K.L. Yung, A blockchain-enabled horizontal federated learning system for fuzzy invasion detection in maintaining space security, *Journal of Industrial Information Integration*, Volume 43, Jan 2025, 100745.

Year 2024

3. Pandey, A.K., Daultani, Y., Pratap, S., **Ip, A.W.H.** & Zhou, F. "Analyzing Industry 4.0 Adoption Enablers for Supply Chain Flexibility: Impacts on Resilience and Sustainability", *Global Journal of Flexible Systems Management*, DOI: 10.1007/s40171-024-00396-x (2024).
4. Chen, J., Qiu, L., Zhu, Z., Sun, N., Huang, H., **Ip, W.H.** & Yung, K.L., "The WIPI Model Based on Multi-Scale Local Contrast Post-Processing for Infrared Small Target Detection", *Canadian Journal of Remote Sensing*, Vol. 50, Iss. 1, DOI: 10.1080/07038992.2024.2305913 (2024).
5. Tsang, Y.P., Lee, C.K.M., Zhang, K., Wu, C.H. & **Ip, W.H.**, "On-Chain and Off-Chain Data Management for Blockchain-Internet of Things: A Multi-Agent Deep Reinforcement Learning Approach", *Journal of Grid Computing*, Vol. 22, DOI: 10.1007/s10723-023-09739-x (2024).
6. Bi, Z., Mikkola, A., **Ip, A.W.H.**, Yung, K.L. & Luo, C., "Virtual Verification and Validation to Enhance Sustainability of Manufacturing Systems", *IEEE Transactions on Automation Science and Engineering*, DOI: 10.1109/TASE.2024.3370053 (2024).
7. Bi, Z., Mikkola, A., **Ip, A.W.H.**, Yung, K.L. & Luo, C., "Brain Computer Interface (BCI) for Shared Controls of Unmanned Aerial Vehicles (UAVs)", *IEEE Transactions on Aerospace and Electronic Systems*, DOI: 10.1109/TAES.2024.3368402 (2024).
8. Tao, J., Wang, J., Zhang, P., Zhang, J., Yung, K.L. & **Ip, W.H.**, "LEGAN: A low-light image enhancement generative adversarial network for industrial internet of smart-cameras", *Internet of Things*, Vol. 25, DOI: 10.1016/j.iot.2023.101054 (2024).
9. Y. M. Tang, **W. H. Ip**, K. L. Yung, Z. Bi, Industrial information integration in deep space exploration and exploitation: Architecture and technology, *Journal of Industrial Information Integration*, Volume 42, Nov 2024, 100721, ISSN 2452-414X, <https://doi.org/10.1016/j.jii.2024.100721>.
10. Zhu, D., Ye, Z., He, K., Yung, K., & **W. H. Ip**, A. Nov 2024. SCNet: semi-supervised and contrastive learning against noisy labels with two selection strategy approach. *International Journal of General Systems*, 1–14. <https://doi.org/10.1080/03081079.2024.2430349>
11. Wu, C., Hu, H., Zhu, D., Shan, X., Yung, K.L. and **Ip, A.W.H.**, Aug 2024. A Study of Discriminatory Speech Classification Based on Improved Smote and SVM-RF. *Applied Sciences* (2076-3417), 14(15).

12. Lu, L., Xu, Y., Fan, W., Pan, H., **Ip, W. H.** and Yung, K.L., 2024. Research on the recovery method of disrupted flights considering passenger transfer and cancellation costs. *Operations Management Research*, pp.1-27.
13. Liu, H.; Li, S.; Sun, F.; Fan, W.; **Ip, W.-H.**; Yung, K.-L. Adaptive Dynamic Programming with Reinforcement Learning on Optimization of Flight Departure Scheduling. *Aerospace*. Sep 2024, 11, 754. <https://doi.org/10.3390/aerospace11090754>
14. Xu W, Zhu D, Deng R, Yung K, **Ip AWH**. Violence-YOLO: Enhanced GELAN Algorithm for Violence Detection. *Applied Sciences*. Aug 2024; 14(15):6712. doi.org/10.3390/app14156712
15. Z. Bi, A. Mikkola, **A. W. H. Ip**, K. L. Yung and C. Luo, "Brain–Computer Interface for Shared Controls of Unmanned Aerial Vehicles," in *IEEE Transactions on Aerospace and Electronic Systems*, vol. 60, no. 4, pp. 3860-3871, Aug. 2024, doi: 0.1109/TAES.2024.3368402.
16. Zhu, D., Shan, X., Wu, C., Yung, K., & **Ip, A.** Jan 2024. Multi Frame Obscene Video Detection With ViT: An Effective for Detecting Inappropriate Content. *International Journal on Semantic Web and Information Systems (IJSWIS)*, 20(1), 1-18. DOI: 10.4018/IJSWIS.359768
17. Zhu, D., Huang, Z., Yung, K., & **Ip, A. W. H.** (2024). Drug Recognition Detection Based on Deep Learning and Improved YOLOv8. *Journal of Organizational and End User Computing (JOEUC)*, 36(1), 1-21. DOI: 10.4018/JOEUC.359770

(VIII) Research and Teaching Specialties

Research Interests:

Space Systems, Radio Frequency Identification (RFID) and Supply Chain Technologies, Wireless Sensor Networks (WSNs), Decision Support Systems and Artificial Intelligence (AI), Big Data Analytics, Resilience Engineering.

Teaching Areas:

Industrial Engineering, RFID/Supply Chain Technologies, Decision Support Systems, Project Management and Enterprise Systems

(IX) Professional Qualifications

- (i) Chartered Engineer (CEng)
- (ii) Fellow of the Hong Kong Quality Management Association (FHKQMA)
- (iii) Senior Member of the Institution of Electrical and Electronic Engineers (SMIEEE)
- (iv) Member of the Institution of Engineering and Technology (MIET)
- (v) Member of the Institution of Mechanical Engineers (MIMechE)
- (vi) Member of the Hong Kong Institution of Engineers (MHKIE)

(X) Scholarly / Professional Activities (past and present)

External

- Vice Chairman, The China & Hong Kong Enterprise Market Development Association (Present)
- Vice President, Africa Chamber of Commerce Hong Kong (2016 – Present)
- PhD External Examiner, The Royal Melbourne Institute of Technology (RMIT), Australia (Present)
- PhD External Examiner, The University of Hong Kong (Present)
- EngD External Examiner, City University of Hong Kong (Present)

- Committee Member, Information Fusion Division, Chinese Society of Aviation and Aeronautics (2014 – Present)
- Committee Member, Information Fusion Professional Committee, Chinese Society of Aviation and Aeronautics (2013 – 2014)
- Organizing Committee Co-Chair, 2014 3rd International Conference on Cloud Computing and Intelligence Systems (2014)
- International Program Committee Members, The Second International Conference on Enterprise Systems (ES 2014), Shanghai, China, (2 – 3 August 2014)
- Vice Chair and Session Chair, The 5th China Information Fusion Conference (CIFC 2013) (2013)
- Committee Member, Innovation and Technology Association (2004 – 2005)
- Committee Member, Hong Kong Quality Management Association (2001 – 2005)
- International Programme Committee Member, the Seventh International Conference on Stimulating Manufacturing Excellence in Small and Medium Enterprises (SME), June 2005, University of Strathclyde, U.K. (2005)
- International Programme Committee Member, the Sixth International Conference on Stimulating Manufacturing Excellence in Small and Medium Enterprises (SME), June 2003, Athens, Greece (2003)
- Chairman, Manufacturing Management Professional Group, Specialized Section in Management and Design of the Institution of Electrical Engineers, IEE (HK) Center (1996 – 1999)

Internal (PolyU)

- Member, Departmental Management Committee (ISE)
- Member, Departmental Staffing Committee (ISE)
- Associate Director, Integrated Graduate Development Scheme (IGDS) (Warwick University and PolyU MSc, jointaward)
- Associate Professor, Department of Industrial and Systems Engineering
- Leader, Logistics Engineering and Quality Service Theme Group, (ISE)
- Lab-in-charge, RFID Solutions Laboratory
- Programme Leader, Bachelor of Science (BSc) in Enterprise Engineering and E-business (ISE)
- Member, Programme Committee, Bachelor of Engineering (BEng) and Higher Diploma (HD) in Industrial and Systems Engineering (ISE)
- Member, Programme Committee, Bachelor of Science (BSc) in Enterprise Engineering with Management (ISE)
- Member, Programme Committee, Bachelor of Science (BSc) in Logistics Engineering and Management (ISE)
- Member, Programme Committee, Master of Science (MSc) in Industrial Logistics Systems (ISE)
- Member, Programme Committee, Master of Science (MSc) in Technology Management (ISE)
- Member, Planning Committee on the Chinese IGDS/IMDS programmes (Warwick University and PolyU MSc, jointaward)
- Member, Re-validation Committee (Warwick University and PolyU MSc, jointaward)
- Project Supervisor, IGDS Students and Module Coordinator (Warwick University and PolyU MSc, jointaward)
- Subject Coordinator, ISE & FENG Subjects: ISE318, ISE448, ISE5010 and ISE556 (ISE)

(XI) Internal and External Funded Research Projects

Completed Research Projects

(External Funded Projects)

1. General Research Fund, 2016 – 2019, Flexible Nursing Staff Demand Modelling for Nursing Homes (Project Number: 15210815), Co-Investigator (around HK\$ 329,000).
2. Innovation and Technology Support Programme, 2016 – 2018, Development of a IoT Healthcare Platform for Elderly Fitness Exercises (Project Code: ITS/383/15FX), Deputy Principal Investigator (around HK\$ 4,600,000).
3. National Natural Science Foundation of China, 2014 – 2017, Selecting and Designing an Optimal Selling Format of a Product in Online Retailing Channels with Boundedly Rational Customers (Project Code: 71371190), Co-Investigator (RMB\$560,000).
4. Collaborative Research with Sino Parking Services Limited, 2014 – 2016, The Design of a Business Intelligent System Using Hybrid Big Data Approach for Parking Service Industry (Project Code: H-ZDAM), Principal Investigator (HK\$998,000).
5. Innovation and Technology Support Programme, 2014 – 2016, Energy, Environment and Safety Cloud Applications (EES-Cloud) for Smart Cities (Project Code: ITS/161/13FX), Principal Investigator (around HK\$ 8,490,000).
6. Innovation and Technology Support Programme, 2013 – 2016, Development of a Redundant Autopilot and Stabilization Control Unit (Project Code: ITS/114/13FX), Co-Investigator (around HK\$ 5,281,000).
7. Collaborative Research with Perfect Green Supplies Company Limited, 2014 – 2016, RFID-based Green Management Information Platform for Environmental Hygiene Industry (Project Code: H-ZDAK), Co-Investigator (HK\$1,000,000).
8. Innovation and Technology Support Programme, 2012 – 2014, Development and Implementation of an Advanced Automobile Parking Navigation Platform (Project Code: ITS/043/11FX), Principal Investigator (around HK\$ 4,000,000).
9. Collaborative Research with Pok Oi Hospital, 2012 – 2014, The Design and Development of RFID-based Electronic Nursing Management System (RF-ENMS) (Project Code: H-ZJE5), Principal Investigator (HK\$ 300,000).
10. Collaborative Research with Sino Parking Services Limited, 2011 – 2014, The Design of an n-Tier Distributed Business Intelligent Architecture for Carpark Service System (Project Code: H-ZD88), Principal Investigator (HK\$ 1,000,000).
11. Teaching Company Scheme with Techtronic Industrial Limited, 2007 – 2009, A Knowledge Management Model for New Product Design and Innovation Strategies Using System Dynamics Approach (Project Code: RPV2), Principal Investigator (HK\$ 300,000).
12. Teaching Company Scheme with Hong Kong Crystal Limited, 2007 – 2009, Development of an Autonomous Real Time Monitoring and Control System for Distributed Manufacturing of High Technology Electronic Components (Project Code: RPG3), Principal Investigator (HK\$ 280,000).
13. Teaching Company Scheme with Group Sense Limited, 2005 – 2007, Development of an Intelligent Supplier Evaluation System for Streamlining Purchasing Operations in a Logistics Network (Project Code: UIT/74), Co-Investigator (HK\$ 317,200).
14. Innovation and Technology Support Programme, 2002 – 2004, An Intelligent Management Decision Support System for Aircraft Maintenance Services (Project Code: UIM/91), Principal Investigator (HK\$ 1,500,000).
15. Teaching Company Scheme with Kingtronics Co. Ltd., 1996 – 1999, The Development of an Intelligent Enterprise Information System for Global Manufacturing (Project Code: 751),

- Principal Investigator (HK\$ 718,000).
16. Teaching Company Scheme with GRD Engineering Ltd., 1996 – 1998, Design of an Intelligent Manufacturing System Using Real-time Monitoring and Control System (Project Code: 740), Principal Investigator (HK\$ 382,000).

(Internal Funded Projects)

17. Departmental General Research Fund, 2014 – 2016, A Smart Sensor-based Data Mining Paradigm for Healthcare Industry (Project Code: G-UB97), Principal Investigator (HK\$ 300,000).
18. Departmental General Research Fund, 2014 – 2015, An Integrated Approach for Sustainable Solid Waste Management for Hong Kong (Project Code: G-UC83), Co-Investigator (HK\$ 200,000).
19. Central Research Grant, 2013 – 2014, Proactive Resilient Supply Chain Network: Theory and Applications (Project Code: G-YM83), Principal Investigator (HK\$ 105,000).
20. Central Research Grant, 2012 – 2014, Towards a Theory of Proactive Resilient Supply Chain Network (Project Code: G-YK04), Principal Investigator (HK\$ 150,000).
21. Central Research Grant, 2011 – 2012, Interactive Robotic Mannequin Design for Fashion Industry (Project Code: G-U894), Co-Investigator (HK\$ 105,000).
22. RGC Direct Allocation, 2011 – 2012, A Dynamic Analytical Model with RFID for Evaluating Supply Chain Operations and Performance (Project Code: A-PK97), Co-Investigator (HK\$ 120,000).
23. Central Research Grant, 2010 – 2012, Modeling Resilience and Friability of Logistics Networks using Stochastic Linear Integer Programming (Project Code: G-YJ12), Principal Investigator (HK\$ 100,000).
24. Central Research Grant, 2010 – 2011, An Approach to Ball Grid Arrays Signature Analysis Based on Chaos Theory (Project Code: G-U726), Principal Investigator (HK\$ 105,000).
25. Central Research Grant, 2009 – 2011, Improved Evolutionary Algorithms with Primal-Dual Population for Dynamic Variation in Production Systems (Project Code: G-YH60), Principal Investigator (HK\$ 120,000).
26. UGC Matching Grant, 2008 – 2012, Development of an Intelligent Transportation Systems (ITS) Testbed for Real-time Navigation and Cross-boundary Container Logistics Management (Project Code: J-BB7Q), Co-Investigator (HK\$ 3,490,000; Co-I's research proportion: HK\$300,000).
27. Central Research Grant, 2008 – 2011, Aircraft Services Dynamic Planning Based on Multi-Agent Organization (Project Code: G-YG81), Principal Investigator (HK\$ 320,000).
28. Central Research Grant, 2008 – 2010, Cross-media Content-based 3D Model Retrieval System (Project Code: G-YG44), Co-Investigator (HK\$ 200,000).
29. Central Research Grant, 2007 – 2009, A Multiple Objective Hybrid Intelligent Optimisation Algorithm for Fourth Party Logistics (Project Code: G-YF56), Principal Investigator (HK\$ 200,000).
30. Central Research Grant, 2007 – 2008, Dynamic Planning and Scheduling of Production Logistics for High-Technology Industry (Project Code: G-U323), Principal Investigator (HK\$ 150,000).
31. RGC Direct Allocation Grant, 2005 – 2007, A Study of Data Encoding Scheme in a Radio-Frequency Identification (RFID) Passive Tag for Apparel Supply Chain (Project Code: A-

- PG25), Co-Investigator (HK\$ 118,000).
32. Departmental General Research Fund, 2005 – 2006, The Development of Risk Analysis Model for Technology Based Virtual Enterprises (Project Code: A-PA1K), Principal Investigator (HK\$ 63,000).
 33. RGC Direct Allocation Grant, 2003 – 2005, Hybrid Intelligent Decision Support System for Process Design and Optimization of Product Assembly (Project Code: A-PE49), Principal Investigator (HK\$ 195,000).
 34. Central Research Grant, 2003 – 2005, Optimization of Production Planning for Fabric Cutting of Apparel Manufacture (Project Code: G-YD75), Co-Investigator (HK\$ 233,900).
 35. Central Research Grant, 2002 – 2004, A New Soft Computing Paradigm for the Optimization of Distributed Manufacturing Processes (Project Code: G-T463), Co-Investigator (HK\$ 197,000).
 36. RGC Direct Allocation Grant, 2001 – 2003, An Intelligent Group Decision Support System (GDSS) for Global Dynamic Alliance (Project Code: A-PC83), Principal Investigator (HK\$ 226,000).
 37. Central Research Grant, 2000 – 2004, Heteromorphic Paradigm for Networked Joint Manufacturing System (Project Code: G-V969), Co-Investigator (HK\$ 644,000).
 38. Central Research Grant, 1999 – 2002, Development of a Model with Structural ERP Learning Approach Using Systems Dynamic (Project Code: G-V927), Principal Investigator (HK\$ 444,000).
 39. Central Research Grant, 1999 – 2001, The Optimization of Assembly Planning for Incandescent Lamps Manufacture (Project Code: G-T057), Principal Investigator (HK\$ 260,000).
 40. Central Research Grant, 1999 – 2000, Solution of Earliness and Tardiness Production Scheduling and Planning (ETPSP) Problem Using Fuzzy Genetic Algorithms (FGAs) (Project Code: G-YB90), Co-Investigator (HK\$ 140,000).
 41. Central Research Grant, 1999 – 2000, Intelligent and Fuzzy Design for Global Manufacturing Information System (Project Code: G-YB95), Principal Investigator (HK\$ 189,000).
 42. Central Research Grant, 1998, Computer Integrated Logistics Engineering and Management (Project Code: G-S783), Co-Investigator (HK\$ 50,000).
 43. Central Research Grant, 1997 – 1998, Intellectual Approach to Flexible Manufacturing Systems Design (Project Code: G-S399), Co-Investigator (HK\$ 219,000).
 44. Central Research Grant, 1996 – 2002, The Design and Development of a Hierarchical Control Model for Intelligent Manufacturing System (Project Code: G-V443), Principal Investigator (HK\$ 672,000).
 45. Central Research Grant, 1995 – 2002, Manufacturing Resource Planning System for Total Quality Management (Project Code: G-V204), Co-Investigator (HK\$ 588,000).
 46. Central Research Grant, 1995 – 1998, Manufacturing Integration using a Generic MRP II Model (Project Code: G-V156), Principal Investigator (HK\$ 363,000).
 47. Central Research Grant, 1995 – 1998, Laser Welding of Super Duplex and Duplex Stainless Steels (Project Code: G-V292), Co-Investigator.
 48. Central Research Grant, 1995 – 1997, Artificial Intelligence in Manufacturing System Using Neural Network and Time Series Modelling (Project Code: G-S143), Principal Investigator.

Completed Teaching and Learning Projects

49. Learning & Teaching Development Fund, 2010 – 2011, The Development of an Interest-Oriented Mobile Learning Platform (IMLP) for Production Logistics and Facility Layout Planning Topics (Project Code: LTG09-12/SS/ISE2), Co-Investigator (HK\$ 100,000).
50. Learning & Teaching Development Fund, 2007 – 2008, The Development of Interested-based Learning Platform for Machine Vision Applications (Project Code: 2005-08/LTG/SS2/ISE3), Principal Investigator (HK\$ 130,000).

(XII) Awards and Honours

Awards

International / Local Awards:

- (i) **Gold Medal with the Congratulations of Jury**, 43rd International Exhibition of Inventions of Geneva, International Exhibition of Inventions (2015)
- (ii) **Thailand Award for Best International Invention from The National Research Council of Thailand (NRCT)**, 43rd International Exhibition of Inventions of Geneva, International Exhibition of Inventions (2015)
- (iii) Big Data Analysis Award 2014 on Research Application, Big Data Analysis Awards 2014, China & Hong Kong Enterprise Market Development Association (EMDA) (2014)
- (iv) Silver Award of the IoT Implementation Excellence, Hong Kong Internet of Things (IoT) Awards, GS1 Hong Kong (2014)
- (v) Silver Award of the IoT Application Innovation, Hong Kong Internet of Things (IoT) Awards, GS1 Hong Kong (2014)
- (vi) **Natural Science Award – Second Class (自然科學二等獎)**, 2013 Ministry of Education Higher Education Outstanding Scientific Research Output Awards (Science and Technology), Ministry of Education, China (2013)
- (vii) Excellent Paper of the Conference, The 12th Conference on Information Technology and Applications in Outlying Islands, National Quemoy University, Kinmen, Taiwan (2013)
- (viii) Highly Commended Award for the paper “In-house development of low cost automatic IC workcell for BGA solder ball attachment” in the Journal - *Assembly Automation*, Emerald LiteratiNetwork (2009)

Departmental Awards (PolyU):

- (i) Highest External Competitive Research Grant Award 2015-2016 – Bronze Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2017)
- (ii) Highest External Competitive Research Grant Award 2013-2014 – Silver Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2014)
- (iii) Highest Consultancy Income Award 2013-2014 – Bronze Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2014)
- (iv) Highest External Competitive Research Grant Award 2011-2012 – Gold Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2012)
- (v) Highest Paper Output Award 2011-2012 – Gold Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2012)

- (vi) Highest No. of Grade A Papers Award 2011-2012 – Bronze Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2012)
- (vii) Solicitation of Donation Award 2010-2011 – Gold Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2011)
- (viii) Highest Paper Output Award 2010-2011 – Bronze Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2011)
- (ix) Highest Paper Output Award 2009-2010 – Gold Award, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2010)
- (x) Top 10% Ranked Journals Award 2005-2006, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2006)
- (xi) Highest No. of Journal Paper Output Award 2004 – Second Prize, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (2005)

Supervised Student Awards

- (i) Best Paper Award, 2019 International Conference on Digital Health and Medical Analytics, Zhengzhou, China (2019)
- (ii) Champion, Supply Chain and Logistics Management Innovation Project Competition 2017 (2017)
- (iii) Second Runner-up, Final Year Project Competition 2016-2017, IEEE (Hong Kong) Computational Intelligence Chapter (2017)
- (iv) Best Student Paper Award, The 4th International Conference on Enterprise Systems (ES2016), Melbourne, Australia (2016)
- (v) First Runner-Up, Final Year Project Competition 2014-2015, IEEE (Hong Kong) Computational Intelligence Chapter (2015)
- (vi) Certificate of Merit, Hong Kong U-21 Internet of Things (IoT) Awards 2014, GS1 Hong Kong (2014)
- (vii) Best Research Awards (最佳研究大獎), HK-Taiwan EPC / RFID Academia Awards 2013, GS1 Hong Kong & GS1 Taiwan (2013)
- (viii) Gold Award, Most Innovative EPC/Rfid Application, Hong Kong Rfid Awards U-21 Rfid Awards 2013, GS1 Hong Kong (2013)
- (ix) Silver Award, Most Innovative EPC/Rfid Application, Hong Kong Rfid Awards U-21 Rfid Awards 2013, GS1 Hong Kong (2013)
- (x) Merit Award, The Innovation Stream in PolyU Micro Fund 2013, The Hong Kong Polytechnic University (2013)
- (xi) Most Innovative Awards (最具創意大獎), HK-Taiwan EPC / RFID Academia Awards 2012, GS1 Hong Kong & GS1 Taiwan (2012)
- (xii) Best Research Awards (最佳研究大獎), HK-Taiwan EPC / RFID Academia Awards 2012, GS1 Hong Kong & GS1 Taiwan (2012)
- (xiii) Gold Award, Best EPC/Rfid Concept, Hong Kong Rfid Awards U-21 Rfid Awards 2012, GS1 Hong Kong (2012)
- (xiv) Silver Award, Best EPC/Rfid Concept, Hong Kong Rfid Awards U-21 Rfid Awards 2012, GS1 Hong Kong (2012)
- (xv) Merit Award, The Innovation Stream in PolyU Micro Fund 2012, The Hong Kong Polytechnic University (2012)
- (xvi) Champion, HK-Taiwan EPC / RFID Academia Awards 2011, GS1 Hong Kong & GS1 Taiwan (2011)

- (xvii) Gold Award, Best EPC/RFID Concept, Hong Kong RFID Awards U-21 RFID Awards 2011, GS1 Hong Kong (2011)
- (xviii) Certificates of Merits, Hong Kong RFID Awards 2011, GS1 Hong Kong (2011)

Honours

- (i) Special Guest Speaker, The 3rd International Conference on Intelligent, Interactive Systems and Applications (2018)
- (ii) Special Guest Speaker, The 3rd International Conference on Intelligent Computing, Communication & Devices 2017 (2017)
- (iii) Speaker, 「智為樂齡・跨代共贏」—Opening ceremony cum Gernotech Forum (2017)
- (iv) Panelist for Panel Discussion, The New Era of Cloud Computer (2017)
- (v) Judge Panel Member, Hong Kong ICT Awards 2017 - Best Smart Hong Kong Award (2017)
- (vi) Judge Panel Member, Metro Awards for Banking and Finance Corporations 2016 (2016)
- (vii) Judge Panel Member, Metro Awards for Service Excellence 2016 (2016)
- (viii) Judge Panel Member, Hong Kong ICT Awards 2016 - Best Smart Hong Kong Award (2016)
- (ix) Panel Judge and Award Presenter, the Prime Awards for Brand Excellence 2015 (2015)
- (x) Judge Panel Member, Metro Awards for Banking and Finance Corporations 2015 (2015)
- (xi) Judge Panel Member, Hong Kong ICT Awards 2015 - Best Smart Hong Kong Award (2015)
- (xii) Judge Panel Member, EMDA Big Data Analysis Award 2014 (2014)
- (xiii) Speaker, 'We Are Cloud Makers' Developers Seminar (2014)
- (xiv) Speaker, 'Journey to the Cloud' SMEs Seminar (2014)
- (xv) Judge Panel Member, The Hong Kong Internet of Things (IoT) Awards 2014 (2014)
- (xvi) Judge Panel Member, WE ARE CLOUD MAKERS (2014)
- (xvii) Judge Panel Member, The Prime Awards for Brand Excellence 2014 (2014)
- (xviii) Judge Panel Member, Prime Awards for Banking and Finance Corporations 2014 (2014)
- (xix) Judge Panel Member, Prime Awards for Eco-Business 2014 (2014)
- (xx) Judge Panel Member, The Hong Kong RFID Awards 2013 (2013)
- (xxi) Judge Panel Member, Prime Awards for Banking and Finance Corporations 2013 (2013)
- (xxii) Judge Panel Member, Prime Awards for Eco-Business 2013 (2013)
- (xxiii) Speaker, GS1 Hong Kong in HK U-21 RFID Awards 2013 – Young Talents' Projects Sharing Seminar (2013)
- (xxiv) Speaker, the Federation of The Hong Kong Polytechnic University Alumni Associations in Quarterly Gathering with Star Speakers (2012)
- (xxv) Speaker, The Hong Kong Polytechnic University and GS1 Hong Kong in The Distinguished Seminar on Internet of Things (IoT) (2012)
- (xxvi) Judge Panel Member, Prime Awards for Eco-Business 2011 (2011)
- (xxvii) Judge Panel Member and Award Presenter, the Prime Awards for the Best Brand Enterprise in Greater China 2010 and the Best Eco-Business in Greater China 2010 (2010)
- (xxviii) Judge Panel Member and Award Presenter, the Prime Awards for the Best Brand Enterprise in Greater China 2009 and the Best Eco-Business in Greater China 2009 (2009)
- (xxix) Speaker, the Hong Kong Institution of Engineers (HKIE) in the CAI Symposium 2004 (2004)

(XIII) Patents and Registered Design

- (i) 一種無線遙距電能監控方法和裝置, Short-term Patent, Hong Kong, Issued, Patent No. 18115542.1 (2019)

- (ii) 一种无线遥距电能监控装置, Utility Model Patent, China, Issued, Patent No. 201822026598.8 (2019)
- (iii) 智能排插 (名氣通) (Smart Power Extension Bar (TGT)), China Design Patent Number: 2016305779892 (July 2017)
- (iv) 智能資訊亭 (名氣通) (Smart Kiosk (TGT)), China Design Patent Number: 201630352562 (December 2016)
- (v) 智能資訊亭 Smart Kiosk, Hong Kong Design Registration Number: 1601377.7 (July 2016)

(XIV) Postgraduate Research Students

As a chief/co-supervisor, Prof. Ip has supervised over 25 postgraduate students in PhD, EngD and MPhil levels. He is particularly interested in supervising student research in the following areas:

- WSN technologies
- RFID technologies and Internet of Things (IoT)
- Engineering optimization and artificial intelligence
- Advanced planning and scheduling

Graduated PhD/EngD/MPhil Students

In the Capacity as Chief Supervisor

- (i) NG Chun Kit, PhD, graduated in 2018, Thesis title: Design and optimization of RFID-enabled wireless sensor network (WSN) monitoring system for biological and pharmaceutical products storage
- (ii) WANG Lixing, PhD, graduated in 2013, Thesis title: An Approach for the Perishable Product Logistics based on Real-time Monitoring with Radio Frequency Identification (RFID)
- (iii) CHAN Sze Ling, PhD, graduated in 2011, Thesis title: An Integrated Decision Support System for New Product Development with Customer Satisfaction
- (iv) LAM Chi Yung, PhD, graduated in 2011, Thesis title: A Supply Chain Collaborative Model: Integrating the Design, Operation and Measurement Stages of Supply Chain
- (v) TING Siu Lun, PhD, graduated in 2011, Thesis title: A Clinical Decision Support System for Medical Prescription Process
- (vi) WU Chun Ho, PhD, graduated in 2011, Thesis title: Evolutionary Computation in Machine Vision for Manufacturing and Logistics Industry
- (vii) CHEUNG Angus, EngD (University of Warwick), graduated in 2006, Thesis title: Intelligent Management Decision Support System (IMDSS) for Aircraft Maintenance Services
- (viii) WANG Ying Na, MPhil, graduated in 2006, Thesis title: A Two-phase Approach to Solve Manpower Scheduling and Task Assignment Problem in Aircraft Maintenance Industry
- (ix) CHAN Yuk Kau, EngD (University of Warwick), graduated in 2002, Thesis title: The Total Management System and Its Implementation in Railway Engineering Management
- (x) KEUNG Kwok Wai William, PhD, graduated in 2002, Thesis title: The Design and Development of an Intelligent Planning and Scheduling Hierarchy System for Flexible Manufacturing Systems
- (xi) LAI Chun Lau, MPhil, graduated in 2002, Thesis title: A System Dynamics Approach to the Analysis and Implementation of ERP
- (xii) NG Kit Chong, PhD, graduated in 2002, Thesis title: The Design of an Enterprise Information System Using Hierarchical Design Pyramid and Web-based Object Oriented Model
- (xiii) LEE Kwok Cheung, MPhil, graduated in 1999, Thesis title: A Paradigm for the Integration of

- Real Time Monitoring with MRPII
- (xiv) LO Yuen Fai, MPhil, graduated in 1998, Thesis title: A Structural Approach to the Design and Implementation of MRPII
 - (xv) TSENG Henry, EngD (University of Warwick), graduated in 1997, Thesis title: The Design and Implementation of Integrated Manufacturing Strategy in China

In the Capacity as Co-Supervisor

- (xvi) JIANG Huimin, PhD, graduated in 2014, Thesis title: Modelling of Customer Satisfaction and Determination of Specifications for New Products Using Computational Intelligence Techniques
- (xvii) PENG Sixiang, PhD, graduated in 2013, Thesis title: Development of an Interactive Robotic Mannequin for Fashion Industry
- (xviii) CHAN Yan Yu, PhD, graduated in 2013, Thesis title: Knowledge Agent Theory (KAT) for Knowledge Activation in the Leagile Manufacturing Environment of the Soft Goods Industry
- (xix) XUE Fan, PhD, graduated in 2013, Thesis title: A Novel Metaheuristic Model with Distributed Pattern Learning
- (xx) DENG Shuo Feng, MPhil, graduated in 2012, Thesis title: A Methodology for Integrating Supplier Selection with Product Line Design
- (xxi) HO To Sum, PhD, graduated in 2007, Thesis title: Development of a Cooperative Distributed Process Mining System for Continual Quality Enhancement
- (xxii) WANG Qing, PhD, graduated in 2004, Thesis title: A Heteromorphic Paradigm for Networked Production System
- (xxiii) CHAN Chi Keung Donald, PhD, graduated in 2002, Thesis title: A Mechanism for Implementing Total Quality Management Based on Manufacturing Resource Planning System
- (xxiv) WONG Wai Keung, PhD, graduated in 2002, Thesis title: Intelligent Optimization Model for Computerized Fabric-Cutting System
- (xxv) YIP Wai Man, MPhil, graduated in 1998, Thesis title: High Power Nd-Yag Laser Welding of Super Duplex Stainless Steels