

YU YUE

Current Position: Assistant Professor (Research)

Address: Room ZS1010, Department of Land Surveying and Geo-informatics, The Hong Kong Polytechnic University, Hong Kong, China

Tel: +852 6218 2854

Email: michael-yue.yu@polyu.edu.hk

Education && Work Experience

[02/2022-03/2022] The Hong Kong Polytechnic University, Hong Kong, China

Postdoctoral Fellow

Department of Land Surveying and Geo-informatics, Smart Cities Research Institute

Research Interests: Urban Informatics, Seamless Positioning and Wireless Awareness

[09/2020-01/2023] The Hong Kong Polytechnic University, Hong Kong, China

Doctor of Philosophy

Department of Land Surveying and Geo-informatics

Thesis: Autonomous Localization by Integrating Wi-Fi and MEMS Sensors in Large-scale Indoor Spaces

[09/2018-12/2021] Wuhan University, Wuhan, China

Doctor of Engineering

State Key Laboratory of Information Engineering in Surveying, mapping, and Remote Sensing

Thesis: Autonomous Localization by Integrating Wi-Fi and MEMS Sensors in Large-scale Indoor Spaces

[09/2015-06/2018] Chongqing University of Posts and Telecommunications, Chongqing, China

M.Sc. in Integrated Circuit Engineering

School of Optoelectronic Engineering

Dissertation: Research on Autonomous Pedestrian Navigation Based on Multiple Redundant Combination of Micro-inertial Sensors

[09/2011-06/2015] Chongqing University of Posts and Telecommunications, Chongqing, China

B.Sc. in Electronical Information Science and Technology

School of Optoelectronic Engineering

Dissertation: Research on Autonomous Pedestrian Navigation Based on Multiple Redundant Combination of Micro-inertial Sensors

Journal publications

[1] Yu Y., Chen R. Z., Chen L., et al. Precise 3-D indoor localization based on Wi-Fi FTM and built-in sensors. *IEEE Internet of Things Journal*. 2020, 7(12): 11753-11765. (Representative research, SCI, IF=10.238, Q1)

- [2] Shi W. Z., **Yu Y***, et al. A Deep-learning Approach for Modelling Pedestrian Movement Uncertainty in Large- Scale Indoor Areas, *International Journal of Applied Earth Observation and Geo-information*. 2022, 9(14): 11827-11842. (Representative research, SCI, IF= 7.672, Q1)
- [3] **Yu Y.**, Shi W. Z., et al. Precise 3D Indoor Localization and Trajectory Optimization Based on Sparse Wi Fi FTM Anchors and Built in Sensors, *IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY*, 2022, 71(4): 4042-4056. (Representative research, SCI, IF= 6.239, Q1)
- [4] **Yu Y.**, Chen R. Z., Chen L., et al. A Novel 3-D Indoor Localization Algorithm Based on BLE and Multiple Sensors. *IEEE Internet of Things Journal*. 2021, 8(11): 9359-9372. (Representative research, SCI, IF=10.238, Q1)
- [5] **Yu Y.**, Chen R. Z., Chen L., et al. H-WPS: Hybrid Wireless Positioning System Using an Enhanced Wi-Fi FTM/RSSI/MEMS Sensors Integration Approach. *IEEE Internet of Things Journal*. 2021, 9(14): 11827-11842. (Representative research, SCI, IF=9.471, Q1)
- [6] **Yu Y.**, Chen R. Z., Chen L., et al. Autonomous 3D Indoor Localization Based on Crowdsourced Wi-Fi Fingerprinting and MEMS Sensors. *IEEE Sensors Journal*, 2021, 22(6): 5248-5259. (SCI, IF=4.325, Q1, ESI Highly Cited Paper)
- [7] **Yu Y.**, Shi W. Z., Chen R. Z., et al. Map-assisted Seamless Localization using Crowdsourced Trajectories Data and Bi-LSTM Based Quality Control Criteria. *IEEE Sensors Journal*, 2022, 22(16): 16481-16491. (SCI, IF=4.325, Q1)
- [8] Qi L, **Yu Y.***, et al. A Robust Foot-mounted Positioning System Based on Dual IMU Data and Ultrasonic Ranging. *IEEE Sensors Journal*, 2022. (SCI, IF=4.325, Q1)
- [9] **Yu Y.**, Chen R. Z., Chen L., et al. A robust dead reckoning algorithm based on Wi-Fi FTM and multiple sensors. *Remote Sensing*, 2019, 102: 368–385. (SCI, IF=5.349, Q1)
- [10] Wan Q, **Yu Y.***, et al. Map-assisted 3-D Indoor localization using Crowd-sensing-based Trajectory Data and Error Ellipse Enhanced Fusion. *Remote Sensing*, 2022, 102: 368–385. (SCI, IF=5.349, Q1)
- [11] Wan Q, Duan X. Q., **Yu Y.***, et al. Self-Calibrated Multi-Floor Localization Based on Wi-Fi Ranging/Crowdsourced Fingerprinting and Low-cost Sensors, *Remote Sensing*, 2022, 105: 297–315. (SCI, IF=5.349, Q1)
- [12] **Yu Y.**, Zhang Y., Chen R. Z., et al. Intelligent Fusion Structure for Wi-Fi/BLE/QR/MEMS Sensor-Based Indoor Localization, *Remote Sensing*, 2023, 15(5): 1202. (SCI, IF=5.349, Q1)
- [13] **Yu Y.**, Chen R. Z., Chen L., et al. A Robust Seamless Localization Framework Based on Wi-Fi FTM/GNSS and Built-in Sensors. *IEEE Communications Letters*. 2021, 128: 103894. (SCI, IF=3.553, Q2)
- [14] Qi L, **Yu Y.***, et al. Precise 3-D Foot-mounted indoor Localization System using Commercial Sensors and Map Matching Approach. *Measurement Science and Technology*. 2022, 33(11): 115117. (SCI, IF=2.398, Q2)
- [15] **Yu Y.**, Chen R. Z., Chen L., et al. Wi-Fi Fine Time Measurement: Data Analysis and Processing for Indoor Localization. *Journal of Navigation*. 2020, 73(5): 1106–1128. (SCI, IF=2.647, Q2)
- [16] Yang D. P., Shi W. Z., **Yu Y.***, et al. Analysis of the Spatial Distribution and Associated Factors of the Transmission Locations of COVID-19 in the First Four Waves in Hong Kong. *ISPRS International Journal of Geo-Information*. 2023, 12(3), 111. (SCI, IF=3.099, Q2)

Lectures and supervisions

[07/2019-08/2021] WHU Course of Indoor Positioning and Navigation

Teaching Assistant, Created the tutorial, help teachers to give lectures, and marked homework. Helped students design and implement group works and system experiments, using MATLAB and Java software.

[02/2021-05/2021] PolyU Course of Climate Change and Society

Teaching Assistant, Created the tutorial, gave lectures, and marked homework. Helped students design and implement group discussion and group works.

[09/2021-12/2021] PolyU Course of Smart City and Urban Informatics

Teaching Assistant, Created the tutorial, help teachers give lectures, and marked homework. Helped students design and implement group discussion and group works.

Projects

[09/2018-12/2021] Indoor Positioning and Navigation

Major Participate for the project entitled with “Highly available precision indoor intelligent hybrid positioning and indoor GIS technology”, Funded by 2016YFB0502200.

Contributions: 1) Autonomous 3D positioning and self-calibration algorithm using smartphone built-in sensors; 2) Hybrid positioning structure using the combination of Wi-Fi FTM, fingerprinting, MEMS sensors in large-scale indoor spaces.

[09/2020-12/2021] Geo-spatial Data Analysis

Major Participate for the project entitled with “3D Spatial Data Platform for Modular Integrated Construction”, Funded by ITT/018/20LP.

Contributions: 1) The self-construction approach of the crowdsourced navigation database; 2) Uncertainty analysis of crowdsourced trajectories.

[12/2021- Present] Geo-spatial Data Analysis

Major Participate for the project entitled with “A Decision-Support Platform for COVID-19 Pandemic Control”, Funded by ITP/041/21LP.

Contributions: 1) Software Application for acquiring real-time pedestrian indoor and outdoor location information using mobile terminals; 2) Implementation of large-scale spatial data acquisition and error evaluation;

Selected awards

[11/2022] Second Prize of Academic Innovation, Wuhan University

[12/2021] Nomination of Excellent PhD Graduation Thesis, Wuhan University

[10/2021] Second Prize of Academic Innovation, Wuhan University

[12/2020] Champion of IPIN-2020 International Indoor Positioning Competition

[12/2020] Research Scholarship, the Hong Kong Polytechnic University

[11/2019] Outstanding Research Graduate, Wuhan University

[10/2019] First Prize of Academic Scholarship of Wuhan University

[09/2018] Champion of IPIN-2018 International Indoor Positioning Competition

[11/2017] China National Scholarship

Selected patents (of China)

[1] Shi W. Z., **Yu Y.**, Indoor and outdoor seamless positioning and self-construction method of navigation database (Application No.: 202110805104X) (Invention Patent, under review)

[2] Shi W. Z., **Yu Y.**, A novel algorithm of multi-source fusion based indoor positioning using the combination of Wi-Fi ranging, fingerprinting and MEMS sensors (Application No.: 202111482055.7) (Invention Patent, under review)

[3] Shi W. Z., **Yu Y.**, A method of 3D indoor localization and optimization using sparsely deployed landmarks and MEMS sensors (Application No.: 202111470294.0) (Invention Patent, under review)

[4] Shi W. Z., **Yu Y.**, A multi-source fusion positioning method and device in a large-scale indoor scene (Chinese patent for invention, under review);

[5] Shi W. Z., **Yu Y.**, A method and device for anti-interference position estimation under multi-source information constraints (Chinese patent for invention, under review);

[6] Shi W. Z., **Yu Y.**, Uncertainty Region Estimation Method for Pedestrian Trajectories in Large-Scale Indoor Space (Chinese patent for invention, under review);

Serve as reviewers

- IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS
- Information Fusion
- IEEE TRANSACTIONS ON Mobile Computing
- IEEE TRANSACTIONS ON Industrial Informatics
- IEEE TRANSACTIONS ON Instruments and Measurements
- IEEE Internet of Things Journal
- Expert Systems With Applications
- International Journal of Applied Earth Observation and Geo-information
- Geo-spatial Information Science
- Defence Technology
- IEEE Communications Letters.
- IEEE Access
- Atmosphere
- Sustainability
- Applied Sciences
- Machines
- Sensors
- Journal of Information Security and Applications
- Navigation
- Mathematical Biosciences and Engineering
- International Journal of Image and Data Fusion
- Journal of Communications and Information Networks