Peifeng Ma

Vice-Chancellor Assistant Professor
Department of Geography and Resource Management, The Chinese University of Hong Kong, Shatin, Hong Kong
Email: mapeifeng@cuhk.edu.hk; Phone: (852) 62722131;
Homepage: https://www.grm.cuhk.edu.hk/en/profile/prof-ma-peifeng/
ORCID: 0000-0002-9536-1348

EDUCATION

2016	Ph.D., Earth System and Geoinformation Science, The Chinese University of Hong Kong
2012	M.S., Signal and Information Processing, Chinese Academy of Sciences
2009	B.S., Geographic Information System, Nanjing University of Technology

PROFESSIONAL APPOINTMENTS

08/2022-Present	Vice-Chancellor Assistant Professor, Department of Geography and Resource Management, The Chinese University of Hong Kong, Hong Kong
03/2019-08/2019	Visiting Scholar, Politecnico di Milano, Milan, Italy
02/2016-07/2022	Research Assistant Professor, AXA Post-Doctoral Fellow, Institute of Space and Earth Information Science, The Chinese University of Hong Kong, Hong Kong

RESEARCH INTERESTS

- Satellite remote sensing
- Deep learning and big data analytics
- Carbon neutrality
- SAR/InSAR for deformation monitoring
- Geo-hazard early warning
- Sustainable cities and communities

FELLOWSHIPS AND ACADEMIC HONORS

Personal Achievements

2023	Grand Prize, National Science and Technology Progress Award in Geo-information (*Awarded to 4 yearly; I am ranked 2/12*)
2022	25 Representative Scientific Research Achievements, the 25th Anniversary of the Hong Kong Handover
2022	CUHK Vice-Chancellor Early Career Professorship Scheme (*Awarded to 10 out of more than 350 international applications*)

2020 First Class, National Surveying and Mapping Science and Technology Progress Award
(Awarded to 22 out of 240 applicants nationwide; I am ranked 2/12)

2017 Remote Sensing Young Talent Award, National Remote Sensing Centre of China, MOST
(Awarded to 23 young talents nationwide)

2016 AXA Post-Doctoral Fellowships, AXA Research Fund
(Awarded to 29 out of 400 applicants from all over the world; I am the first winner from CUHK)

2016 Postgraduate Research Output Award, The Chinese University of Hong Kong
(Awarded to one graduate student in the Faculty of Social Science, CUHK)

2015 First Class, Yuen-Yuen Scholarship, ISEIS, The Chinese University of Hong Kong

2014 Postgraduate Scholarship, The Chinese University of Hong Kong

2013 Chen Shupeng Scholarship, ISEIS, The Chinese University of Hong Kong

2006 Second Class, Mathematics Contest Award of Jiangsu Province, Jiangsu, China

Awards Received by Mentored Students

2023 1st Place Award, Student Honors Paper Competition, the American Association of Geographers Remote Sensing Specialty Group
(The first time a CUHK student received the prize)

2023 1st Place, Annual Excellent PhD Dissertation Award, IEEE Geoscience and Remote Sensing Society Hong Kong Chapter
(*Awarded to one PhD graduate in geoscience and remote sensing from the Greater Bay Area*)

2023 Rising Star in GIS, China University GIS Forum
(Awarded to 12 graduate students nationwide, the only recipient from Hong Kong)

2023 Excellent Award, The Greater Bay Area Ph.D. and Postdoctoral Innovation and Entrepreneurship Competition
(Awarded to 21 out of 2161 projects, only CUHK project)

2022 Best Oral Presentation Award, Advanced Urban Remote Sensing Workshop, IEEE Geoscience and Remote Sensing Society

2021 Postgraduate Research Output Award, The Chinese University of Hong Kong
(Awarded to one graduate student in the Faculty of Social Science, CUHK)

2021 The Most Cited Paper, Annals of GIS

2021 Scholarship of MSc in Geo-survey and Public Management, Institute of Space and Earth Information Science, The Chinese University of Hong Kong

2020 Chen Shupeng Scholarship, Institute of Space and Earth Information Science, The Chinese University of Hong Kong

2019 Shenhua Remote Sensing Technology Scholarship, Institute of Space and Earth Information Science, The Chinese University of Hong Kong

2019 Travel Grants, 1st Regional Conference on Environmental Modeling and Software (Asian Region)

2018 Best Poster Award, ESA-MOST DRAGON 4 PROGRAMME

2018 Best Student Paper Award, the 26th International Conference on Geoinformatics

RESEARCH PROJECTS

*Highlights: As PI/PC, Peifeng Ma has secured **more than HK$ 40 million** research grants, including **4 RGC GRF grants** (more than HK$ 2.7 million in total), **4 ITF grants** (more than HK$ 33 million), **2 NSFC grants** (more than RMB 0.8 million in total).*

09/2023-08/2026 Landslide deformation monitoring and risk assessment in vegetated subtropical mountains using InSAR and deep learning
(PI, RGC General Research Fund, HK$ 1,050,310)

08/2023-05/2025 Development of CUHK satellites and integrated remote sensing technologies for near real-time landslide monitoring
(PC, Innovation and Technology Fund, HK$ 17,723,000)

06/2023-05/2025 Vehicle Detection and Vehicle-kilometrage Estimation Based on Remote Sensing Technologies
(Co-PI, Smart Traffic Fund, HK$ 7,995,088)

01/2023-12/2024 Deep learning-based radar remote sensing of land subsidence in deltaic metropolitan regions for sustainable development
(PI, RGC General Research Fund, HK$ 743,635)

08/2022-07/2024 Geography and Resource Management New Faculties Start-up
(PI, Improvement on Competitiveness in Hiring New Faculties Funding Scheme, HK$ 3,097,831)

06/2022-05/2024 Mapping Forest Biomass Using Multi-Source Remote Sensing and Deep Learning Methods
(PI, The Chinese University of Hong Kong Faculty of Social Science Direct Grant for Research 2021-22, HK$ 97,000)

04/2022-03/2024 Multi-Temporal InSAR Remote Sensing for Sustainable Conservation of World Heritage
(PI, CUHK Knowledge Transfer Project Fund, HK$ 400,000)

11/2021-10/2023 Integration of DInSAR and SAR Offset Tracking Technologies for Large Deformation Monitoring of Hong Kong Boundary Crossing Facilities
(PC, Innovation and Technology Fund, HK$ 3,820,000)

11/2020-11/2022 Development of InSAR Deformation Analysis Technologies for Urban Infrastructural Safety Diagnosis

(PC, Innovation and Technology Fund, HK$ 7,211,000)

01/2020-12/2021 Deep Learning of InSAR Time-Series Deformation for Infrastructural Health Diagnosis
(PI, RGC General Research Fund, HK$ 497,362)

01/2020-12/2023 Fast Estimation and Intelligent Prediction of Time-Series Deformation Based on Multi-baseline SAR
(PI, National Natural Science Foundation of China, RMB 610,000)

03/2019-02/2027 Centre for Slope Safety
(Co-PI, RGC Areas of Excellence, HK$ 91,852,000)

01/2019-12/2020 Re-analysing Multi-platform Observed Glacier Mass Balance by Using Coupled Weather and Glacier Energy & Mass Balance Model in the Eastern Himalaya
(PI, RGC General Research Fund, HK$ 421,614)

10/2018-09/2020 Continuous Land Cover Change Monitoring Using High-Resolution SAR Images for Hong Kong
(PC, Innovation and Technology Fund, HK$ 4,351,000)

01/2017-12/2019 Robust detection of Persistent Scatterers in Complex Built Environments with Cloudy and Rainy Weather

(PI, National Natural Science Foundation of China, RMB 198,000)

11/2016-04/2018 Deformation Monitoring of Critical Infrastructures on Shenzhen Western Reclamation Lands and Early Warning of Risks

(PI, Open Fund of Key Laboratory of Urban Land Resources Monitoring and Simulation, Ministry of Land and Resources, RMB 200,000)

09/2016-08/2018 Remote Sensing of Infrastructural Dynamics and Early Warning of Risks for a Sustainable Built Environment
(PI, AXA Research Fund, Euro 130,000)

07/2016-08/2018 Pilot Study on the Use of Remote Sensing Techniques in Ground Deformation Monitoring for the Hong Kong International Airport
(Co-PI and technical leader, Innovation and Technology Fund, HK$3,448,000)

PUBLICATIONS

Highlights:

- *As first/corresponding author, **26 papers in total**, including 4 papers on Remote Sensing of Environment (IF=13.5), 3 papers on ISPRS Journal of Photogrammetry and Remote Sensing (IF=12.7), 1 paper on IEEE Geoscience and Remote Sensing Magazine (IF=14.6), 2 papers on IEEE Transactions on Geoscience and Remote Sensing (IF=8.2).*
- *My corresponding authored paper won the **1st Place Award in the American Association of Geographers Remote Sensing Specialty Group Student Honors Paper Competition**.*

Books

[B02] **Ma, P.**, Cui, Y., Wang, W., Lin, H., Zhang, Y., & Zheng, Y. Landslide Movement Monitoring with InSAR Technologies. Landslides Chapter 10, *BoD–Books on Demand*, 2022.

[B01] Lin Hui and **Ma, P.**, Introduction of InSAR technologies and applications for urban infrastructural health monitoring, *Science Press*, 2021 (Chinese).

Journal Articles (*Corresponding)

[J47] **Ma, P.***, Wu, Z., Zhang, Z., & Au, F., 2024. SAR-Transformer-based decomposition of time-series InSAR signals for evaluating the impacts of Geotechnical, Meteorological, and Marine conditions on the Hong Kong-Zhuhai-Macao Bridge's deformations. *Remote Sensing of Environment*, 302, 113962.

[J46] Wu, Z., Zhang, X., Ye, G., & **Ma, P***, 2024. Efficient management and processing of massive InSAR images using an HPC-based cloud platform. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

[J45] Wu, Z., Zhang, X., Cai, J., **Ma, P.***, & Kwan, M.-P., 2023. Understanding spatially non-stationary effects of natural and human-induced factors on land subsidence based on InSAR and multi-source geospatial data: A case study in the Guangdong-Hong Kong-Macao Greater Bay Area. *International Journal of Digital Earth*, 16(2): 4404-4427.

[J44] Chen, F., Guo, H., **Ma, P.,** Tang, Y., Wu, F., Zhu, M., …, & Lin, H., 2023. Sustainable development of World Cultural Heritage sites in China estimated from optical and SAR remotely sensed data[J]. *Remote Sensing of Environment*, 298: 113838.

[J43] Chen, L., **Ma, P.*,** Yu, C., Zheng, Y., Zhu, Q., & Ding, Y., 2023. Landslide susceptibility assessment in multiple urban slope settings with a landslide inventory augmented by InSAR techniques. *Engineering Geology*, 107342.

[J42] Wu, Z., Zhang, X., **Ma, P.**, Kwan, M.-P., & Liu, Y., 2023. How did urban morphological factors influence the land surface temperature in Hong Kong during 2017-2022? Evidence from remote sensing and land use data. *Sustainability*, 15(21), 15511.

[J41] Mao, W., Wang, X., Liu, G., Pirasteh, S., Zhang, R., Lin, H., …, & **Ma, P**., 2023. Time Series InSAR Ionospheric Delay Estimation, Correction, and Ground Deformation Monitoring with Reformulating Range Split-Spectrum Interferometry. *IEEE Transactions on Geoscience and Remote Sensing*, 61, 1-18.

[J40] Mao, W., Wang, X., Liu, G., **Ma, P.**, Zhang, R., Ma, Z., …, & Lin, H., 2023. Ionospheric Phase Delay Correction for Time Series Multi-aperture InSAR Constrained by Polynomial Deformation Model. *IEEE Geoscience and Remote Sensing Letters*, 20, 1-5.

[J39] Wu, Z., **Ma, P.***, Zheng, Y., Gu, F., Liu, L., & Lin, H., 2023. Automatic detection and classification of land subsidence in deltaic metropolitan areas using distributed scatterer InSAR and Oriented R-CNN. *Remote Sensing of Environment*, 290, 113545.

[J38] Li, W., **Ma, P.***, Wang, H., & Fang, C., 2023. SAR-TSCC: A Novel Approach for Long Time Series SAR Image Change Detection and Pattern Analysis. *IEEE Transactions on Geoscience and Remote Sensing*, 61, 1-16.

[J37] Lin, Y., Zhang, H., Li, G., Wan, L., Wang, F., **Ma, P.***, & Lin, H., 2022. Improving urban impervious surface extraction by synergizing hyperspectral and polarimetric radar data using sparse representation. *The Egyptian Journal of Remote Sensing and Space Science*, 25(4), 1045-1056.

[J36] **Ma, P.**, Zheng, Y., Zhang, Z., Wu, Z., & Yu, C., 2022. Building risk monitoring and prediction using integrated multi-temporal InSAR and numerical modeling techniques. *International Journal of Applied Earth Observation and Geoinformation*, 114, 103076.

[J35] Shi, G., Huang, B., **Ma, P.**, & Lin, H., 2022. Distributed scatterer interferometry for forested and hilly areas using a topographical homogeneous filtering. *Remote Sensing Letters*, 13(5), 460-469.

[J34] Bai, Y., Sun, G., Li, Y., **Ma, P.**, Li, G., & Zhang, Y., 2021. Comprehensively analyzing optical and polarimetric SAR features for land-use/land-cover classification and urban vegetation extraction in highly-dense urban area. *International Journal of Applied Earth Observation and Geoinformation*, 103, 102496.

[J33] **Ma, P.,** Lin, H., Wang, W., Yu, H., Chen, F., Jiang, L., …, & Wang, J., 2021. Toward Fine Surveillance: A Review of Multitemporal Interferometric Synthetic Aperture Radar for Infrastructure Health Monitoring. *IEEE Geoscience and Remote Sensing Magazine*, 10(1), 207-230.

[J32] Zhao, Z., Wu, Z., Zheng, Y., & **Ma, P.*,** 2021. Recurrent neural networks for atmospheric noise removal from InSAR time series with missing values. *ISPRS Journal of Photogrammetry and Remote Sensing*, 180, 227-237.

[J31] Lin, Y., Wan, L., Zhang, H., Wei, S., **Ma, P.*,** Li, Y., & Zhao, Z., 2021. Leveraging optical and SAR data with a UU-Net for large-scale road extraction. *International Journal of Applied Earth Observation and Geoinformation*, 103, 102498.

[J30] Wu, Z., Zhao, Z., **Ma, P.*,** & Huang, B., 2021. Real-World DEM Super-Resolution based on Generative Adversarial Networks for Improving InSAR Topographic Phase Simulation. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 14, 8373-8385.

[J29] **Ma, P.,** Cui, Y., Wang, W., Lin, H., & Zhang, Y., 2021. Coupling InSAR and numerical modeling for characterizing landslide movements under complex loads in urbanized hillslopes. *Landslides*, 1-13.

[J28] Shi, G., **Ma, P.*,** Hu, X., Huang, B., & Lin, H., 2021. Surface response and subsurface features during the restriction of groundwater exploitation in Suzhou (China) inferred from decadal SAR interferometry. *Remote Sensing of Environment*, 256, 112327.

[J27] Chen, F., Guo, H., Tapete, D., Masini, N., Cigna, F., Lasaponara, R., ... & **Ma, P**., 2021.

Interdisciplinary approaches based on imaging radar enable cutting-edge cultural heritage applications. *National Science Review*, 8(9), nwab123.

[J26] **Ma, P.,** Zhang, F., Lin, H., 2020. Prediction of InSAR time-series deformation using deep convolutional neural networks. *Remote Sensing Letters*, 11, 137-145.

[J25] Shi, G., **Ma, P.,** Lin, H., Huang, B., Zhang, B., Liu, Y., 2020. Potential of Using Phase Correlation in Distributed Scatterer InSAR Applied to Built Scenarios. *Remote Sensing*, 12, 686.

[J24] **Ma, P.,** Wang, W., Zhang, B., Wang, J., Shi, G., Huang, G., Chen, F., Jiang, L., Lin, H., 2019. Remotely sensing large-and small-scale ground subsidence: A case study of the Guangdong–Hong Kong–Macao Greater Bay Area of China. *Remote Sensing of Environment*, 232, 111282.

[J23] Chen, F., Zhou, W., Chen, C., & **Ma, P.**, 2019. Extended D-TomoSAR Displacement Monitoring for Nanjing (China) City Built Structure Using High-Resolution TerraSAR/TanDEM-X and Cosmo SkyMed SAR Data. *Remote Sensing*, 11(22), 2623.

[J22] **Ma, P.,** Li, T., Fang, C., Lin, H., 2019. A tentative test for measuring the sub-millimeter settlement and uplift of a high-speed railway bridge using COSMO-SkyMed images. *ISPRS Journal of Photogrammetry and Remote Sensing*, 155, 1-12.

[J21] Liu, Y., **Ma, P.*,** Lin, H., Wang, W., Shi, G., 2019. Distributed Scatterer InSAR Reveals Surface Motion of the Ancient Chaoshan Residence Cluster in the Lianjiang Plain, China. *Remote Sensing*, 11, 166.

[J20] **Ma, P.,** Liu, Y., Wang, W., Lin, H., 2019. Optimization of PSInSAR networks with application to TomoSAR for full detection of single and double persistent scatterers. *Remote Sensing Letters*, 10, 717-725.

[J19] Shi, G., Lin, H., Bürgmann, R., **Ma, P.**, Wang, J., Liu, Y., 2019. Early soil consolidation from magnetic extensometers and full resolution SAR interferometry over highly decorrelated reclaimed lands. *Remote Sensing of Environment*, 231, 111231.

[J18] Zhang, B., Wang, R., Deng, Y., **Ma, P.,** Lin, H., Wang, J., 2019. Mapping the Yellow River Delta land subsidence with multitemporal SAR interferometry by exploiting both persistent and distributed scatterers. *ISPRS Journal of Photogrammetry and Remote Sensing*, 148, 157-173.

[J17] Wang, J., Deng, Y., Wang, R., **Ma, P.,** Lin, H., 2019. A Small-Baseline InSAR Inversion Algorithm Combining a Smoothing Constraint and L_1-Norm Minimization. *IEEE Geoscience and Remote Sensing Letters*, 16(7): 1061-1065.

[J16] Wang, J., Huang, B., Zhang, H.K., **Ma, P.,** 2019. Sentinel-2A Image Fusion Using a Machine Learning Approach. *IEEE Transactions on Geoscience and Remote Sensing*, 57, 9589-9601.

[J15] Shi, G., Lin, H., **Ma, P.*,** 2018. A Hybrid Method for Stability Monitoring in Low-Coherence Urban Regions Using Persistent and Distributed Scatterers. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 11(10): 3811-3821.

[J14] Zhou, L., Chai, D., Xia, Y., **Ma, P.,** 2018. Comparison of optimization algorithms for interferometric synthetic aperture radar phase unwrapping based on identical Markov random fields. *Journal of Applied Remote Sensing*, 12, 025016.

[J13] Sun, Q., Jiang, L., Jiang, M., Lin, H., **Ma, P.,** Wang, H., 2018. Monitoring Coastal Reclamation Subsidence in Hong Kong with Distributed Scatterer Interferometry. *Remote Sensing*, 10, 1738.

[J12] Zhou, L., Chai, D., Xia, Y., **Ma, P.,** Lin, H., 2018. Interferometric synthetic aperture radar phase unwrapping based on sparse Markov random fields by graph cuts. *Journal of Applied Remote Sensing*, 12, 015006.

[J11] Lin, H., **Ma, P.*,** 2017. Urban infrastructural health diagnosis with satellite-terrestrial sensing technologies. *Annals of GIS*, 23(2), 1-8.

[J10] Lin Hui, **Ma, P.***, Wang Weixi, 2017. Urban Infrastructure Health Monitoring with Spaceborne Multi-temporal Synthetic Aperture Radar Interferometry[J]. *Acta Geodaetica et Cartographica Sinica*, 46(10), 1421-1433.

[J09] Chen, F., Guo, H., **Ma, P.,** Lin, H., Wang, C., Ishwaran, N., Hang, P., 2017. Radar interferometry offers new insights into threats to the Angkor site. *Science Advances*, 3, e1601284.

[J08] Xu, Y., Ren, C., **Ma, P.**, Ho, J., Wang, W., Lau, K.K.-L., Lin, H., Ng, E., 2017. Urban morphology detection and computation for urban climate research. *Landscape and Urban Planning*, 167, 212-224.

[J07] Chen, F., Wu, Y., Zhang, Y., Parcharidis, I., **Ma, P.,** Xiao, R., …, & Foumelis, M., 2017. Surface Motion and Structural Instability Monitoring of Ming Dynasty City Walls by Two-Step Tomo-PSInSAR Approach in Nanjing City, China. *Remote Sensing*, 9, 371.

[J06] **Ma, P.,** Lin, H., 2016. Robust Detection of Single and Double Persistent Scatterers in Urban Built Environments. *IEEE Transactions on Geoscience and Remote Sensing*, 54, 2124-2139.

[J05] **Ma, P.,** Lin, H., Lan, H., Chen, F., 2015. Multi-dimensional SAR tomography for monitoring the deformation of newly built concrete buildings. *ISPRS Journal of Photogrammetry and Remote Sensing*, 106, 118-128.

[J04] **Ma, P.,** Lin, H., Lan, H., Chen, F., 2015. On the performance of reweighted L1 minimization for tomographic SAR imaging. *IEEE Geoscience and Remote Sensing Letters*, 12, 895-899.

[J03] Xu, Y., **Ma, P.**, Ng, E., Lin, H., 2015. Fusion of worldview-2 stereo and multitemporal TerraSAR-X images for building height extraction in urban areas. *IEEE Geoscience and Remote Sensing Letters*, 12, 1795-1799.

[J02] Lin, H., **Ma, P.***, & Lan, H. X, 2015. Basic Principles, Key Techniques and Applications of Tomographic SAR Imaging. *J. Geomatics*, 40, 1-6.

[J01] Zhang, H., **Ma, P.,** Wang, C., 2012. A New Function Expansion for Polarization Coherence Tomography. *IEEE Geoscience and Remote Sensing Letters*, 9, 891-895.

Peer-reviewed Conference Papers (*Corresponding)

[C13] Wang, Z., **Ma, P.***, & Liu, F. A channel phase error compensation algorithm based on the strong points analysis for GNSS-based InBSAR systems. *In 8th Asia-Pacific Conference on Synthetic Aperture Radar*, Bali island, Indonesia, 23-27 October 2023

[C12] Wu, Z., Zhao, Z., Zheng, Y., & **Ma, P.***. Automatic detection of widely distributed local-scale subsidence bowls in rapidly urbanizing metropolitan regions using time-series InSAR and deep learning methods. *In 2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Brussels, Belgium, 11-16 July 2021.

[C11] Lin, Y., Zhang, H., **Ma, P.***, & Li, Y. Multisource Shadow-Based Fuzzy Set (MSFS) Approach for Impervious Surfaces Mapping from Optical and SAR Data. *In 2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Brussels, Belgium, 11-16 July 2021.

[C10] Wan, L., Zhang, H., **Ma, P.***, & Lin, G. Mangrove Species Mapping Using Deep Learning with Fusion of Hyperspectral and High-Resolution Multispectral Images. *In 2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Brussels, Belgium, 11-16 July 2021.

[C09] Lin, Y., Zhang, H., **Ma, P.***, & Lin, H. A shadow free multisource stack sparse autoencoder framework for urban impervious surface mapping. *In 2020 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Waikoloa, HI, USA, 26 September-02 October 2020.

[C08] Wu, Z., & **Ma, P.***. ESRGAN-based DEM super-resolution for enhanced slope deformation monitoring in Lantau island of Hong Kong. *In the International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 43, 351-356, Nice, France, 14–20 June 2020.

[C07] Zhou, L., Xia, Y., Chai, D., & **Ma, P**. Extended Puma Algorithm for Multibaseline SAR Interferograms. *In 2018 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Valencia, Spain, 22-27 July 2018.

[C06] **Ma, P.**, Shi, G., Lin, H., Wang, J., & Wang, W. Detection of homogeneous objects in multi-dimensional SAR tomography. *In 2017 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Fort Worth, TX, USA, 23-28 July 2017.

[C05] **Ma, P.**, Lin, H., & Chen, F. Robust detection of single and double persistent scatterers in urban built environments: The Tomo-PSInSAR method. *In 2016 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Beijing, China, 10-15 July 2016.

[C04] Shan, Z., Zhang, H., Wang, C., Chen, J., & **Ma, P**. Improved scattering-model-based speckle filter of polarimetric SAR data. *In EUSAR 2012; 9th European Conference on Synthetic Aperture Radar*, Nuremberg, Germany, 23-26 April 2012.

[C03] Zhang, H., Wang, C., **Ma, P.**, Lu, W., Shan, Z., & Chen, J. Improvement of pol SAR

calibration based on the ainsworth algorithm. *In EUSAR 2012; 9th European Conference on Synthetic Aperture Radar*, Nuremberg, Germany, 23-26 April 2012.

[C02] **Ma, P.**, Zhang, H., Wang, C., & Chen, J. Classification of forest vegetation species based on parameters of tomography. *In 2011 3rd International Asia-Pacific Conference on Synthetic Aperture Radar (APSAR)*, Seoul, Korea (South), 26-30 September 2011.

[C01] **Ma, P.**, Zhang, H., Wang, C., & Chen, J. An interferometric coherence optimization method based on genetic algorithm in PolInSAR. *In 2011 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Vancouver, BC, Canada, 24-29 July 2011.

Papers Under Review (*Corresponding)

[W10] **Ma, P.**, Yu, C., Jiao, Z., Zheng, Y., Wu, Z., Mao, W., & Lin, H., 2023. Improving time-series InSAR deformation estimation for city clusters by deep learning-based atmospheric delay correction. *Remote Sensing of Environment*. (Major revision)

[W09] **Ma, P.**, Chen, L., Yu, C., Zhu, Q., Ding, Y., Wu, Z., Li, H., & Tian, C., 2023. Dynamic landslide susceptibility mapping over last three decades to uncover variations in landslide causation in subtropical urban mountainous areas. *Remote Sensing of Environment*. (Under review)

[W08] **Ma, P.**, Jiao, Z., & Wu, Z., 2023. Robust monitoring of time-series InSAR deformation by integrating variational mode decomposition and gated recurrent units. *ISPRS Journal of Photogrammetry and Remote Sensing*. (Under review)

[W07] **Ma, P.**, Yu, C., Wu, Z., & Wang, Z., 2023. Mining-related Subsidence Measurements Using a Robust Multi-temporal InSAR Method and Logistic Model. *IEEE Journal on Miniaturization for Air and Space Systems for consideration*. (Under review)

[W06] Zhang, Y., **Ma, P.***, Jiang, L., & Gao, S., 2023. Time-Resolved Electromagnetic Near-Field Scanning: Dual Sparse Sampling in Time and Space. *IEEE Transactions on Electromagnetic Compatibility.* (Under review)

[W05] Zhang, Y., **Ma, P.***, Jiang, L., & Gao, S., Data-Driven Scheme for Multidimensional Harmonic Retrieval Using Recursive Parallel Dynamic Mode Decomposition. *IEEE Transactions on Aerospace and Electronic Systems*. (Under review)

[W04] Weng, Q., Li, Z., Cao, Y., Lu, X., Zhang, F., …, **Ma, P.**, …, & Seto., K., 2023, How will AI transform urban observing, sensing, imaging, and mapping? *Nature Cities*. (Under review)

[W03] Li, W., Wang, H., & **Ma, P**., 2023. Spatial Correlation Constrained Low-rank Modeling for SAR Image Change Detection. *IEEE Transactions on Geoscience and Remote Sensing*. (Minor revision)

[W02] Zheng, Z., **Ma, P.***, & Wu, Z., 2023. A context- structural feature decoupling change detection network for detecting earthquake-triggered damage. *International Journal of Applied Earth Observation and Geoinformation*. (Under review)

[W01] Mao, W., **Ma, P.***, & Tang, J., 2023. Mapping High Spatial Resolution Ionospheric Total Electron Content by Integrating Time Series InSAR with IRI Model. *ISPRS Journal of Photogrammetry and Remote Sensing*. (Under review)

Invited Talks and Conference Presentations

[18] Deciphering Building and Infrastructure Deformations Using InSAR and Deep Learning Methods. *In Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability cum*, Hong Kong, December 2023. (Invited talk)

[17] Deep Learning of inSAR Data for Identifying and Interpreting Land Subsidence in Deltaic Metropolitan Areas. *In 1st International Geospatial Health Research Network Workshop*, Hong Kong, December 2023. (Invited talk)

[16] Solutions and resources to manage sinking and land subsidence. *In United Nations ESCAP Expert Group Meeting on Asia-Pacific's Sinking Cities*, Bangkok, Thailand, November 2023. (Invited talk and panelist)

[15] Land subsidence and infrastructure health monitoring using InSAR remote sensing and AI technologies. *In 2nd International Symposium on Advanced Remote Sensing*, Wuhan, China, October 2023. (Invited talk)

[14] Remote Sensing of Land Deformation and Early Warning of Geo-hazards for Sustainable Development. *In the First Earth Observation for Ecosystem, Infrastructure, and City (EO4EIC) Workshop*, Hong Kong, August 2023. (Keynote speech)

[13] Monitoring and Interpretation of Land Subsidence in Urban Agglomeration Based on InSAR and Deep Learning: A Case Study of the Guangdong-Hong Kong-Macao Greater Bay Area. *In the 5th Urban Remote Sensing Academic Symposium*, Beijing, China, July 2023. (Invited talk)

[12] Remote sensing of land subsidence and early warning of geohazard for a sustainable built environment. *In United Nations Regional Workshop on Innovative Geospatial Applications for Sustainable Development*, Bangkok, Thailand, July 2023. (Invited talk)

[11] SAR-Transformer: Decomposing InSAR time series and uncovering the temporal patterns of land deformation. *In 13th International Symposium on Digital Earth*, Athens, Greece, July 2023.

[10] Urban infrastructural health monitoring and geo-hazard early-warning using InSAR technologies. *In 2023 Annual Meeting of the American Association of Geographers*, Denver, CO, March 2023.

[09] Remote sensing of land subsidence and early warning of geohazard for a healthier city. *In 2023 Harvard University Center for Geographic Analysis Conference*, Cambridge, MA, March 2023. (Invited talk)

[08] Land subsidence and infrastructure health monitoring using InSAR remote sensing technologies. *In United Nations Youth Forum on Innovative Use of Geospatial Information*,

Royal Park Rajapruek, Chiang Mai, Thailand, January 2023. (Invited talk)

[07] InSAR remoete sensing for infrastructure health monitoring. *In BIGSARDATA 2017 SAR in Big Data Era: models, methods and applications*. Beijing, China, November 2017. (Invited talk)

[06] Detection of homogeneous objects in multi-dimensional SAR tomography. *In 2017 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Fort Worth, TX, USA, July 2017.

[05] Robust detection of single and double persistent scatterers in urban built environments: The Tomo-PSInSAR method. *In 2016 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Beijing, China, July 2016.

[04] Combined Use of L-band, C-band, and X-band SAR Images for Monitoring the Dynamic Process of an Artificial Island-the Hong Kong International Airport, *In Advances in the Science and Applications of SAR Interferometry and Sentinel-1 InSAR Workshop*, Frascati, Italy, March 2015.

[03] Thermal dilation monitoring of single and double scatterers based on compressive sensing. *In the 2nd International Workshop on Compressed Sensing applied to Radar (CoSeRa 2013)*, Bonn, Germany.

[02] An interferometric coherence optimization method based on genetic algorithm in PolInSAR. *In 2011 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, Vancouver, BC, Canada, July 2011.

[01] Classification of forest vegetation species based on parameters of tomography. *In 2011 3rd International Asia-Pacific Conference on Synthetic Aperture Radar (APSAR)*, Seoul, Korea (South), September 2011.

PATENTS

Invention Patents

[P06] **Ma, P.,** Zheng Y., Zhang Z., Wu Z., Yu Ch., A method based on InSAR technology to evaluate and predict urban building risk. (No. 202211320799.3)

[P05] Lin, H., **Ma, P.**, Ye, G., Zheng Y., Coupling InSAR and numerical modeling for landslide analysis Method (No. 202011147471.7)

[P04] **Ma, P.**, Wang, W., Full scatterer detection method and apparatus (No. ZL201910077641.X)

[P03] **Ma, P.**, Shi, G., Lin, H., Soil consolidation monitoring method, apparatus and equipment (No. ZL201910429729.3)

[P02] **Ma, P.**, Zhang, F., Lin, H., InSAR deformation prediction method, system and apparatus (No. 201910286195.3)

[P01] Xu Y., Ren C., **Ma P.**, Lin H., Yan Yung Ng, 3D Building Extraction Apparatus, Method and System (No. US 2018/0075319 A1)

Software Patents

[S06] **Ma, P.**, eSat V1.0 (No. 2021Sr0890683)

[S05] **Ma, P.**, Ye, G. Zhang, F., Zhao, Z., Pattern Recognition-InSAR V1.0 (No. 2020SR1223595)

[S04] **Ma, P.,** Lin, H., Ye, G., Zhao, Z., InSAR Cloud V1.0 (No. 2020SR0451599)

[S03] **Ma, P.,** Lin, H., Ye, G., Hu, M., PreSense-InSAR V1.0 (No. 2020SR0442965)

[S02] **Ma, P.,** Chen, J., Lin, H., Ye, G., MTSAR-CD V1.0 (No. 2020SR0788261)

[S01] **Ma, P.,** Lin, H., Ye, G., SmartInSAR-Airport V1.0 (No. 2020SR11223591)

TEACHING

Fall	2022-Present	Fundamental Statistics for Geographers (GRMD2102, co-taught with Dr. Zihan Kan), CUHK
Fall	2019-Present	Environmental Remote Sensing Technology (ESGS5018), CUHK
Spring	2019-2022	GeoInformation Technologies for Risk and Crises (ESGS5019), CUHK
Fall	2019-2022	Research Methods (ESGS 5009), CUHK
Spring	2019-2022	Seminars in GeoInformation Science (ESGS 5060, co-taught with Dr. Rongrong Li), CUHK

POSTGRADUATE STUDENTS

Graduated Students (Total: 5)

1. Yuzhou Liu, *Revealing recent surface deformation of urban environments in deltaic plains by advanced DSInSAR,* Ph.D., co-supervised with Prof. Hui Lin, 2019, now chief engineer at Shenzhen Municipal Institute of Public Safety Technology.

2. Yinyi Lin, **received Postgraduate Research Output Award of CUHK (the only awardee in the Faculty of Social Science, CUHK)**, *Mapping the Urban Impervious Surfaces at Different Scales Using Multisource Satellite Data,* Ph.D., 2021, now postdoc fellow at Hong Kong University.

3. Luoma Wan, *Monitoring the mangrove species in Hong Kong with high resolution images using deep learning networks*, Ph.D., 2021, now postdoc fellow at Hong Kong Polytechnic University.

4. Zhuoyi Zhao, *Exploring the application of deep learning methods for InSAR time-series analysis,* Ph.D., 2021, now postdoc fellow at Chinese University of Hong Kong.

5. Zherong Wu, **received 1st Place of American Association of Geographers RSSG Student Honors Paper Competition (the first CUHK awardee), 1st Place of IEEE GRSS HK Annual Excellent PhD Dissertation Award (the only awardee in the Greater Bay Area) and China Rising Star in GIS Award (12 graduate students nationwide, the only awardee from Hong Kong),** *Detecting the Spatiotemporal Pattern of Land Subsidence Using InSAR and Deep*

Learning, Ph.D., 2023, now postdoc fellow at Cornell University.

Current Students (Total: 4)

1. Fangxu Deng, Ph.D., 2021-Present.
2. Yi Zheng, Ph.D., 2022-Present.
3. Chang Yu, Ph.D., 2023-Present.
4. Hoi-Yi Mok, MPhil, 2024-Present.

PROFESSIONAL SERVICE

Executive Secretary

05/2021-Present	Department of Hong Kong Research, Development and Training, National Remote Sensing Center of China, MOST
05/2020-Present	United Nations Economic and Social Commission for Asia and the Pacific
11/2023-Present	Joint Center of the Institute of Space and Earth Information Science of Chinese University of Hong Kong and the Earth Observation Center of China National Space Administration (in preparation)

Review Panel

01/2023-Present	Expert Review Panel	Logistics and Supply Chain MultiTech R&D Centre, Innovation and Technology Commission (ITC)
01/2017-Present	Proposal Reviewer	National Natural Science Foundation of China

Editorship

03/2021-08/2022	Guest editor, Special issue "Remote Sensing and Environmental Studies on Lakes, Rivers, Watersheds, and Coastal Waters" in *Frontiers of Earth Science*.
06/2021-02/2022	Guest editor, Special issue "Deep Learning for InSAR Signals and Data Processing" in *Sensors*.

Journal Reviewer

Remote Sensing of Environment

ISPRS Journal of Photogrammetry and Remote Sensing

International Journal of Applied Earth Observation and Geoinformation

International Journal of Digital Earth

IEEE Transactions on Geoscience and Remote Sensing

IEEE Geoscience and Remote Sensing Letters

IEEE Transactions on Intelligent Transportation Systems

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Landslides

Engineering Geology

GIScience & Remote Sensing

International Journal of Remote Sensing

Geo-spatial Information Science

Remote Sensing Applications: Society and Environment

Journal of Radars

Remote Sensing Letters

Sensors

Journal of Applied Remote Sensing

Frontiers of Earth Science

Remote Sensing

Natural Hazards and Earth System Sciences

Acta Geodaetica et Cartographica Sinica

Journal of Remote Sensing

Geomatics and Information Science of Wuhan University

Organization of Conferences, Workshops, Panels, Symposia

11/2024	Co-chair	The 2nd International Society for Digital Earth Youth Innovation Forum on Digital Earth
04/2024	Session chair	2024 American Association of Geographers (AAG) Annual Meeting
12/2023	Session chair	Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability
12/2023	Committee member	The 1st International Geospatial Health Research Network Workshop
11/2023	Committee co-chair	Outstanding Lecture on Space Science and Sustainable Development and the Launch Ceremony of the Chinese University of Hong Kong Remote Sensing Satellite Project
09/2023	Committee co-chair	BIGSARDATA 2023---SAR in Big Data Era: models, methods and applications
03/2023	Local organizer	Future Generation: Multi-Stakeholder Roles for Strengthening

		Space Applications and Sustainable Development, 10th Asia-Pacific Forum for Sustainable Development
09/2021	Committee member	BIGSARDATA 2021---SAR in Big Data Era: models, methods and applications
07/2021	Session chair	The 28th International Conference on Geoinformatics CPGIS Annual Conference
01/2017	Committee co-chair	International Workshop on InSAR Technologies for Urban Infrastructural Health Diagnosis, Hong Kong
05/2017	Committee co-chair	InSAR Surveying and Mapping Industrialization Summit, Shenzhen, China.

Membership

Council Member, The Hong Kong Young Scientist Association

Council Member, Hong Kong Association of Overseas-Returned Scholars (HKAORS)

Council Member, China Association of Remote Sensing Application, Loess Plateau Chapter

Council Member, Hong Kong Society for Remote Sensing

Senior member, Institute of Electrical and Electronics Engineers (IEEE)

Member, IEEE Geoscience and Remote Sensing Society (GRSS)

Member, Association of American Geographers (AAG)

Member, AAG Remote Sensing Specialty Group (RSSG)

Member, American Geophysical Union (AGU)

Member, European Geosciences Union (EGU)

Member, Ecological Society of American (ESA)

Member, European Association of Geoscientists and Engineers (EAGE)

Member, International Geospatial Health Research Network (IGHRN)

Member, Chinese Professional in Geographic Information Sciences (CPGIS)

Member, International Society for Digital Earth-Young Scientist Innovation Network (ISDE-YSIN)