

Curriculum Vitae

Name : Jonathan Cheung-Wai Chan

Google Scholar Citation indices: Citations 2798. H-index 25. (64 International peer-reviewed Journal papers)

POSITIONS

Since 2014 – Present

Guest Professor. Department of Electronics and Informatics, Vrije Universiteit Brussel, Belgium.

2013 – 2015

Marie Curie Fellow. Fondazione Edmund Mach, Trentino, Italy.

2011 – 2013

Researcher. Department of Electronics and Informatics, Vrije Universiteit Brussel, Belgium.

2015/10 – 2011/9

Doctor Assistant. Department of Geography, Vrije Universiteit Brussel, Belgium.

2001/10 – 2005/9

Post-doc Engineer. Interuniversity Microelectronics Center (IMEC), Leuven, Belgium. Department of Electronics and Informatics, Vrije Universiteit Brussel, Belgium.

1998/10 – 2001/9

Research Scientist. Geography Department, University of Maryland, College Park, USA.

QUALIFICATIONS

1999 Ph.D.

Center of Urban Planning & Environmental Management, University of Hong Kong

1994 Master of Philosophy,

Geography Department, Chinese University of Hong Kong

1986 Bachelor of Social Science,

Geography Department, Chinese University of Hong Kong

RESEARCH INTERESTS

Land cover classification, hyperspectral remote sensing, machine learning algorithms, enhancement methods for spaceborne hyperspectral imagery.

FUNDING

- 2021-2024 EC Erasmus + Capacity Building for High Education Project. **AgriSAT – Innovative curriculum in smart AGRiculture through SATellite and remote sensing data in SEA**. 3 years Total budget €982828 Coordinator.
- 2021-2024 EC Erasmus + Capacity Building for High Education Project. **GeoTAK – Developing Interdisciplinary Postgraduate Programmes and Strengthening Research Networks in Geoinformation Technologies in Armenia and Kyrgyzstan**. 3 years €92000 Partner.
- 2020-2022 European Space Agency OSIP Tender on Marine Plastic Litter. 18 months €98000 Coordinator.
- 2020-2021 Global Minds VUB, Small big project. Smart City Phnom Penh. 1 year €20000 Coordinator.
- 2020-2023 EC Erasmus + Capacity Building for High Education Project. **UN4DRR – University Network for Disaster Risk Reduction and management in Indian Ocean Rim**. 3 years Total budget €932745 Coordinator.
- 2020 – 2022 Target detection and classification with hyperspectral images using Deep Learning methods. Ms Yenan Jiang, CSC PhD grant 24 months. approx. €33600. Supervisor.
- 2017-2022 NSFC Project. Spectro-polarimetric Imaging Theory Based on Grating Array and Deep Learning. 4 years. €82000 (¥650k) Co-Investigator.
- 2017-2020 EC Erasmus + Capacity Building for High Education Project. **NEXUS – Nodes of EXcellence in (SEA) Universities through Spatial data**. 3 years Total budget €999758 Coordinator.
- 2017 – 2019 Missing Information Reconstruction in Remote Sensing Imagery with Deep Learning Methods. Mr Wenbo Li, CSC PhD grant 24 months. approx. €33600. Supervisor.
- 2017 – 2018 Spatial and Spectral Enhancement of Hyperspectral Image Based on Sparse representation. Ms Chen Yi, CSC PhD grant 12 months. Approx. €16800 Supervisor.
- 2016 – 2017 Super-resolution enhancement of hyperspectral data through image fusion and deep learning methods. Mr Jingxiang Yang, CSC PhD grant 18 months approx. €23400. Supervisor.
- 2013 – 2017 A Theoretical Study of Joint Sparse Sampling in Compressed Polarimetric Imaging Spectrometry. Funded by the National Science Foundation of China. €102000 (¥800k) Co-Investigator.
- 2013 – 2017 ForestFusion: Remote sensing data fusion techniques for the study of forest ecosystems. Funded by Research and Innovation Centre, Fondazione Edmund Mach, Italy. Approx. €119000. Supervisor.
- 2011 FWO international mobility grant (Participation in IGARSS) Approx. €1500
- 2009 – 2012 Hyperspectral remote sensing for environment and water management (HYPERENV), HOA Project (Horizontale Onderzoeksacties), funded by Research and Development Council, Vrije Universiteit Brussel. Co-Investigator, 2 PhDs. Total funding approx. €240000
- 2007 – 2010 A classification framework for habitat status reporting with remote sensing methods (HABISTAT), BELSPO, STEREO II (Research Programme for Earth Observation) (2006-2013) 1.12.200631.12.2010, Co-Investigator. Total funding approx. €390000

EDITORIAL

Editorial board member *Remote Sensing*, (impact factor 4.509)

GUEST EDITOR

1. Deep Learning and Feature Mining for Hyperspectral Imagery, Special Issue, *Remote Sensing* (2019)
2. Spatial Enhancement of Hyperspectral Data and Applications, Special Issue, *Remote Sensing* (2017)
3. Multispectral, Hyperspectral and Polarimetric Imaging Technology, Special Issue, *Journal of Sensors* (2015)

JOURNAL PAPERS

Impact Factor

IEEE TGRS (5.855), Remote Sensing of Environment (9.085), Remote Sensing (4.509), TNNLS (8.793)
IEEE JSTARS (3.827), ISPRS JPRS (7.319), IJAEOG (4.650), Applied Energy (8.848), IEEE TGRL (3.833),
Information Sciences (5.910), IEEE Access (3.745)

1. Yang, J., L. Xiao, Y. Zhao, J.C.-W. Chan (2020). Hybrid Local and Non-local 3D Attentive CNN for Hyperspectral Image Super-Resolution. *IEEE Geoscience & Remote Sensing Letters*.
2. Bu, Y., Y. Zhao, J. Xue, J.C.-W. Chan, S.G. Kong, Y. Chen, J. Wen, B. Wang (2020). Hyperspectral and Multispectral Image Fusion via Graph Laplacian Guided Coupled Tensor Decomposition. *IEEE Trans. on Geoscience and Remote Sensing*
3. Y. Yang, S. Song, D. Liu, J.C.-W. Chan, J. Li and J. Zhang, (2020) Hyperspectral Anomaly Detection Through Sparse Representation With Tensor Decomposition-Based Dictionary Construction and Adaptive Weighting," in *IEEE Access*, vol. 8, pp. 72121-72137.
4. K. Wang, Y. Wang, X. Zhao, J. C.-W. Chan, Z. Xu, D. Meng (2020). Hyperspectral and Multispectral Image Fusion via Nonlocal Low-Rank Tensor Decomposition and Spectral Unmixing. *IEEE Trans. on Geoscience and Remote Sensing*
5. Q. Liu, L. Xiao, J. Yang, J. C.-W. Chan (2020) Content-Guided Convolutional Neural Network for Hyperspectral Image Classification. *IEEE Trans. on Geoscience and Remote Sensing*
6. Y. Yang, S. Song, D. Liu, J. C.-W. Chan, J. Li, J. Zhang (2020) Hyperspectral Anomaly Detection through Sparse Representation with Tensor Decomposition-based Dictionary Construction and Adaptive Weighting. *IEEE Access*.
7. C. Yi, Y. Zhao, J.C.-W. Chan, S. G. Kong (2020) Joint Spatial-spectral Resolution Enhancement of Multispectral Images with Spectral Matrix Factorization and Spatial Sparsity Constraints. *Remote Sensing*.
8. X. Kong, Y. Zhao, J. Xue, J. C.-W. Chan, S. G. Kong (2020) Global and Local Tensor Sparse Approximation Models for Hyperspectral Image Destriping. *Remote Sensing*.
9. B. Fang, Y. Li, H. Zhang, J.C.-W. Chan (2020) "Collaborative learning of lightweight convolutional neural network and deep clustering for hyperspectral image semi-supervised classification with limited training samples", *ISPRS Journal of Photogrammetry and Remote Sensing* 161:164-178
10. J. Xue, Y. Zhao, W. Liao, J.C.-W. Chan, S.G. Kong (2019) "Enhanced Sparsity Prior Model for Low-rank Tensor Completion", *IEEE Trans. on Neural Networks and Learning Systems*
11. W. Li, Y. Li, J.C.-W. Chan (2019) "Thick Cloud Removal with Optical and SAR Imagery via Convolutional-Mapping -Deconvolutional Network", *IEEE Trans. on Geoscience and Remote Sensing*.
12. D. Wang, Y. Li, L. Ma, Z. Bai, J.C.-W. Chan (2019) "Going Deeper with Densely Connected Convolutional Neural Networks for Multispectral Pansharpening", *Remote Sensing*, 11 (22), 2608
13. J. Xue, Y. Zhao, W. Liao, J.C.-W. Chan (2019) "Nonconvex Tensor Rank Minimization and Its Applications to Tensor Recovery", *Information Sciences*, 503, 109-128.
14. M. Brach, J.C.-W. Chan, P. Szymanski (2019) "Accuracy Assessment of Different Photogrammetric Software for Processing Data from Low-Cost UAV Platforms in Forest Conditions", *iForest*, 12 (5), 435-441.
15. X. Kong, Y. Zhao, J.C.-W. Chan, J. Xue (2019) "Hyperspectral Image Denoising Using Global Weighted Tensor Norm Minimum and Nonlocal Low-Rank Approximation", *Remote Sensing*, 11 (19), 2281.
16. J. Yang, Y. Zhao, J. C.-W. Chan, L. Xiao (2019) "Multi-Scale Wavelet 3D-CNN Based Hyperspectral Image Super-Resolution", *Remote Sensing*, 11 (13), 1557.
17. C. Yi, Y. Zhao, J. C.-W. Chan (2019) "Spectral super-resolution for multispectral image based on spectral improvement strategy and spatial preservation strategy", *IEEE Trans. on Geoscience and Remote Sensing*.

18. J. Xue, Y. Zhao, W. Liao, J.C.-W. Chan (2019) "Hyper-Laplacian Regularized Nonlocal Low-rank Matrix Recovery for Hyperspectral Image Compressive Sensing Reconstruction", *Information Sciences*, 501, 406-420.
19. W. Li, Y. Li, D. Chen, J. C.-W. Chan (2019) "Thin Cloud Removal with Residual Symmetrical Concatenation Network", *ISPRS Journal of Photogrammetry and Remote Sensing*, 153, 137-150.
20. J. Xue, Y. Zhao, W. Liao, J.C.-W. Chan (2019) "Nonlocal Low-Rank Regularized Tensor Decomposition for Hyperspectral Image Denoising", *IEEE Trans. on Geoscience and Remote Sensing.*, 57 (7), 5174-5189.
21. J. Xue, Y. Zhao, W. Liao, J.C.-W. Chan (2019) "Nonlocal Tensor Sparse Representation and Low-Rank Regularization for Hyperspectral Image Compressive Sensing Reconstruction", *Remote Sensing*, 11 (2), 19
22. B. Fang, Y. Li, H. Zhang, J.C.-W. Chan (2019) "Hyperspectral Images Classification Based on Dense Convolutional Networks with Spectral-Wise Attention Mechanism", *Remote Sensing*, 11 (2), 159
23. L. Guanter, M. Brell, J.C.-W. Chan, C. Giardino, J. Gomez-Dans, C. Mielke, FF. Morsdorf, K. Segl, N. Yokoya, (2019) "Synergistic of Spaceborne Spectroscopy with other Remote Sensing Techniques", *Survey in Geophysics*, Vol. 38, no. 181, 1-31.
24. Y. Li, M. Bercibar, J. C-W Chan, P. van den Bossche, N. Omar, E. Nanini-Maury, J. Van Mierlo (2018) "Diagnostics for state of health of Lithium-ion batteries using Random Forest regression", *Journal of Applied Energy*, 232, 197-210.
25. Xue, J., Y. Zhao, W. Liao, J.C.-W. Chan (2018) "Total Variation and Rank-1 Constraint RPCA for Background Subtraction", *IEEE Access*, 6, 499-55-49966.
26. B. Lin, Y. Li, X. Xue, J.C.-W. Chan (2018) "Robust long-term correlation tracking using convolutional features and detection proposals", *Neurcomputing*, 317, 137-148.
27. Y. Zhao, L. Shen, Q. Peng, J.C.-W. Chan, S.G. Kong (2018) "A feedback image dehazing method with polarization", *IEEE Trans. on Multimedia*, Vol. 20, 1-16.
28. Yang, J., Y. Zhao, J.C.-W. Chan (2018) "Hyperspectral and Multispectral Image Fusion via Deep Two Branches Convolutional Neural Network", *Remote Sensing*, Vol. 10, Issue 5, pp. 800.
29. Li, L, Y. Zhao, J. Sun, R. Stolkin, Q. Pan, J. C.-W. Chan, S.G. Kong and Z. Liu (2018) "Deformable Dictionary Learning for SAR image Change Detection", *IEEE Trans. on Geoscience and Remote Sensing*. Vol. 56, no. 8, 4605-4617.
30. Yi, C. Y. Zhao, J.C.-W. Chan (2018) "Hyperspectral image super-resolution based on spatial and spectral correlation", *IEEE Trans. on Geoscience and Remote Sensing*, Vol. 56, no. 7, 4165-4177.
31. B. Fang, Y. Li, H. Zhang, J.C.-W. Chan (2018) "Semi-supervised Deep Learning Classification for Hyperspectral Image Based on Dual-strategy Sample Selection", *Remote Sensing*, Vol. 10, no. 574, pp. 1-23.
32. Li, Y. F. Cui, J.C.-W. Chan (2018) "Coarse-to-fine salient object detection based on convolutional neural networks", *Signal Processing: Image Communication*, Vol. 64, pp. 21-32.
33. Y. Zhao, M. Wang, G. Yang, J.C.-W. Chan (2018) "FOV Expansion of Bio-Inspired Multiband Polarimetric Imagers with Convolutional Neural Networks", *IEEE Photonics Journal*, Vol. 10, Issue 1, pp. 1-14.
34. Yang, J., Y. Zhao, J.C.-W. Chan (2017) "Learning and Transferring Deep Joint Spectral-Spatial Feature for Hyperspectral Classification", *IEEE Trans. on Geoscience and Remote Sensing*, Vol. 55, Issue 8, Aug. 2017, pp. 4729-4742.
35. Reda, M., Y. Zhao, J.C.-W. Chan (2017) "Depth Enhancement for Dehazed Images Using Polarization Guided Map Reconstruction", *IEEE Photonics Journal*. Vol. 9, Issue 3.
36. Yi, C., Y. Zhao, J. Yang, J.C.-W. Chan, S.G. Kong (2017) "Jointly Hyperspectral Super-Resolution and Unmixing with Interactive Feedback," *IEEE Trans. on Geoscience and Remote Sensing*, Vol. 55, Issue 7, pp. 3823-3834.

37. Yang, J., Y. Zhao, C. Yi, J. C.-W. Chan (2017) "No-Reference Hyperspectral Image Quality Assessment via Quality-Sensitive Features Learning". *Remote Sensing*.
38. Yang, J., Y. Li, J. C.-W. Chan and Q. Shen (2017) "Image Fusion for Spatial Enhancement of Hyperspectral Image via Pixel Group Based Non-Local Sparse Representation", *Remote Sensing*, 9(1), 53.
39. K. Kandare, H.O. Ørka, J.C.-W. Chan, M. Dalponte (2016) "Effects of forest structure and airborne laser scanning point cloud density on 3D delineation of individual tree crowns", *European Journal of Remote Sensing*, 49: 337-359.
40. Yokoya, N. and J.C.-W. Chan, K. Segl (2016) "Potential of Resolution-Enhanced Hyperspectral Data for Mineral Mapping Using Simulated EnMAP and Sentinel-2 Images", Special Issue "The Environmental Mapping and Analysis Program (EnMAP) Mission: Preparing for Its Scientific Exploitation", *Remote Sensing*, 8(3), 172.
41. Yang, J., Y. Zhao, J.C.-W. Chan and S.G. Kong (2016) "Coupled Sparse Denoising and Unmixing with Low-Rank Constraint for Hyperspectral Image", *IEEE Transactions Geoscience and Remote Sensing*, 54 (3), 1818-1833.
42. Li, L, C. Solana, F. Canters, J.C.-W. Chan and M. Kervyn (2015) "Impact of environmental factors on the spectral characteristics of lava surfaces: hyperspectral field spectrometry of basaltic lava flows in Tenerife, Canary Islands, Spain", *Remote Sensing*, 7 (12), 16986-17012.
43. Vaglio-Laurin, V., J.C.-W. Chan, Q. Chen, J.A. Lindsell, D.A. Coomes, L. Guerriero, F. Del Frate, F. Miglietta, R. Valentini (2014) "Biodiversity mapping in a tropical West African forest with airborne hyperspectral data", *Public Library of Science ONE*, 9 (6), e97910.
44. Ma, J., J.C.-W. Chan, F. Canters (2014) "Robust locally weighted regression for superresolution enhancement of multi-angle remote sensing imagery", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, Vol. 7, Issue 4, 1357-1371.
45. Demarchi, L., Canters, F., Carlou, C., Licciard, G., and J.C.-W. Chan (2014) "Assessing the performance of two unsupervised dimensionality reduction techniques on hyperspectral APEX data for high resolution urban land-cover mapping", *ISPRS Journal of Photogrammetry and Remote Sensing*. 87:166-179.
46. Zhao, Y., Yang, J., Chan, J.C.-W., and Y. Yang (2013) "Hyperspectral imagery super-resolution by spatial spectral joint non-local similarity" *IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing*, Vol. 7, Issue 6, 2671-2679.
47. Chan, J.C.-W., P. Beckers, T. Spanhove and J. Vanden Borre (2012), "An evaluation of ensemble classifiers for mapping Natura 2000 heathland in Belgium using spaceborne angular hyperspectral (CHRIS/Proba) imagery", *International Journal of Applied Earth Observation and Geoinformation*, 18:13-22.
48. Demarchi, L., J.C.-W. Chan, J. Ma and F. Canters, (2012), "Mapping impervious surfaces using MESMA for superresolution enhanced angular hyperspectral (CHRIS/Proba) imagery in Brussels capital region", *ISPRS Journal of Photogrammetry and Remote Sensing*, 72:99-112.
49. Ma, J., J.C.-W. Chan and F. Canters (2012), "An operational superresolution approach for multitemporal and multi-angle remotely sensed imagery", *IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing*, 5(1):110-124.
50. Demarchi, L., Canters, F., J.C.-W. Chan and T. Van de Voorde (2012), "Multiple endmember unmixing of CHRIS/Proba imagery for mapping Impervious surfaces in urban and suburban environments", *IEEE Transactions on Geoscience and Remote Sensing*, 50 (9): 3409-3424.
51. Ampe, E., I. Vanhamel, E. Salvatore, J. Dams, I. Bashir, L. Demarchi, J.C.-W. Chan, H. Sahli, F. Canters and O. Batelaan (2012), "Impact of urban land-cover classification on groundwater recharge uncertainty", *IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing*, 99:1-9.

52. Chen, F., Ma, J., J.C.-W. Chan and D. Yan (2011), "Quantitative measurement for the homogeneity and contrast of the step edges in satellite image point spread function estimation", *International Journal of Remote Sensing*, 32(22):7179-7201.
53. Chan, J.C.-W., J. Ma, T. Van de Voorde and F. Canters (2011), "Preliminary results of superresolution enhanced angular hyperspectral (CHRIS/Proba) images for land cover classification", *IEEE Transactions Geoscience and Remote Sensing Letters*, 8(6): 1011-1015.
54. Bortels, L., J.C.-W. Chan, R. Merken, and N. Koedam (2011), "Long term monitoring of wetlands along the Western-Greek bird migration route using Landsat and ASTER satellite images: Amvrakikos Gulf (Greece)", *Journal for Nature Conservation*, 19:215-223.
55. Chan, J.C.-W., Ma, J., Kempeneers, P. and Canters, F (2010) "Superresolution enhancement of hyperspectral CHRIS/Proba images with a thin-plate spline nonrigid transform model", *IEEE Transactions on Geoscience and Remote Sensing*, 48(6):2569-2579.
56. Ma, J., Chan, J.C.-W., Canters, F. (2010), "Fully-automatic sub-pixel registration for multi-angle CHRIS/Proba", *IEEE Transactions on Geoscience and Remote Sensing*, 48 (7):2829-2839.
57. Chan, J.C.-W., Bellens, R., Canters, F. and S. Gautama (2009), "An assessment of geometric activities features for classification of urban man-made objects using meter resolution imagery", *Photogrammetric Engineering & Remote Sensing*, 75(4): 397-411.
58. Chan, J.C.-W. and D. Paelinckx (2008), "An evaluation of Random Forest and Adaboost tree-based ensemble classifications and spectral band selections for ecotope mapping using airborne hyperspectral imagery", *Remote Sensing of Environment*, 112:2999-3011.
59. Bellens, R., G. Sidharta, Marinez-Fonte, L., Philips, W., Chan, J.C.-W., and, Canters, F., (2008) "Improved classification of VHR images of urban areas using directional morphological profiles ", *IEEE Transactions on Geoscience and Remote Sensing*, 46 (10) 3803-2813.
60. Dahdouh-Guebas, F. Van Hiel, E., Chan, J.C.-W., Jayatissa, L. P. and N. Koedam (2004), "Qualitative distinction of congeneric and introgressive mangrove species in mixed patchy forest assemblages using high spatial resolution remotely sensed imagery (IKONOS)", *Systematics and Biodiversity*, 2 (2):113-119.
61. Chan, J.C.-W., Laporte, N. and R.S. DeFries (2003), "Texture classification of logged forests in tropical Africa using machine learning algorithms", *International Journal of Remote Sensing*, vol. 24, no. 6, 1401-1407.
62. Chan, J.C.-W., Huang, C. and R.S. DeFries (2001), "Enhanced algorithm performance for land cover classification from remotely sensed data using bagging and boosting", *Communications, IEEE Transactions on Geoscience and Remote Sensing*, 39 (3): 693-695.
63. Chan, J.C.-W., Chan, K-P and A.G-O Yeh (2001), "Detecting the nature of change in an urban environment – A comparison of machine learning algorithms", *Photogrammetric Engineering & Remote Sensing*, 67 (2): 213-225. (Recipient of the 2002 ERDAS/Leica Geosystems Award for Best Scientific Paper in Remote Sensing)
64. DeFries, R.S. and J.C.-W. Chan (2000), "Multiple criteria for evaluating machine learning algorithms for land cover classification from satellite data", *Remote Sensing of Environment*, 74: 503-515.

CONFERENCE PAPERS

1. N. Li, Y-Q Zhao, Q. Pan, S.G. Kong, J.C.-W. Chan (2020) Full-Time Monocular Road Detection Using Zero-Distribution Prior of Angle of Polarization. ECCV 2020.
2. Y. Bu, Y-Q Zhao, J.C.-W. Chan (2020) Hyperspectral Image Super-resolution via Self-projected Smooth Prior. PRCV 2020.
3. J. Yang, Y. Zhao, J.C.-W. Chan (2019) HYPERSPECTRAL IMAGE SUPER-RESOLUTION BASED ON MULTI-SCALE WAVELET 3D CONVOLUTIONAL NEURAL NETWORK. IGARSS 2019
4. C. Yi, Y. Zhao, J.C.-W. Chan (2019) SPECTRAL SUPER-RESOLUTION FOR MULTISPECTRAL IMAGE BASED ON SPECTRAL AND SPATIAL STRATEGIES. IGARSS 2019
5. X. Kong, Y-Q Zhao, J.C.-W. Chan (2018) 'HYPERSPECTRAL IMAGERY DENOISING USING MULTI-LINEAR WEIGHTED NUCLEAR NORM MINIMIZATION' IEEE International Geoscience and Remote Sensing Symposium (IGARSS)
6. J. Yang, Y. Zhao and J.C.-W. Chan, (2017) "BLIND HYPERSPECTRAL IMAGE QUALITY ASSESSMENT VIA QUALITY-SENSITIVE FEATURES EXTRACTION", IEEE International Geoscience and Remote Sensing Symposium, Austin, Texas, USA July 10-15, 2017. FWO mobility Grant.
7. J.C.-W. Chan and N. Yokoya (2016), "Mapping land covers of Brussels Capital Region using spatially enhanced hyperspectral images", The 5th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, Los Angeles, 21-24 August, 2016.
8. Y. Zhao, C. Yi, J. Yang, J.C.-W. Chan (2016), "Spectral Super-resolution based on matrix factorization and spectral dictionary", The 5th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, Los Angeles, 21-24 August, 2016.
9. Y. Zhao, J. Yang, C. Yi, J.C.-W. Chan (2016), "Hyperspectral image classification using two-channel deep convolutional neural network", IEEE International Geoscience and Remote Sensing Symposium, Beijing, China, July 10-15, 2016.
10. Y. Zhao, C. Yi, J. Yang, J.C.-W. Chan (2014), "Coupled hyperspectral super-resolution and unmixing", Invited Session: Superresolution reconstruction and mapping for hyperspectral imagery, Proceedings of IGARSS 2014, Quebec, Canada, July 13-18, 2014.
11. K. Kandare, M. Dalponte, D. Gianelle, J.C.-W. Chan (2014), "A new procedure for identifying single trees in understory layer using discrete lidar data", Proceedings of IGARSS 2014, Quebec, Canada, July 13-18, 2014.
12. J.C.-W. Chan, M. Dalponte, L. Ene, L. Frizzera and F. Miglietta (2013), "Forest species and biomass estimation using airborne laser scanning and hyperspectral images", The 5th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, 25-28 June 2013, Gainesville, Florida, USA.
13. Van de Voorde, T., J. C.-W. Chan, and F. Canters (2012), "Analysis of the evolution of non-built (green) spaces in and around the Brussels Capital Region over the last decades - a subpixel approach", The 2nd International Workshop on Earth Observation and Remote Sensing Applications 2012, June 8-11, Shanghai, China.
14. Ma, J. and J. C.-W. Chan (2012), "Superresolution reconstruction of hyperspectral remote sensing imagery using constrained optimization of Projections Onto Convex Sets", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.
15. Chan, J. C.-W., A. C. Alegria, M.G. Veratelli and H. Sahli (2012), "Combined spatial point pattern analysis and remote sensing for assessing landmine affected areas", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.
16. Lazar, C., L. Demarchi, D. Steenhoff, J. C.-W. Chan, A. Nowé and H. Sahli (2012), "Local linear spectral unmixing via cluster analysis and non-negative matrix factorization for hyperspectral (CHRIS/Proba) imagery", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.

17. Berezowski, T., J. Chormański and J. C.-W. Chan (2012), "Physically based simulation of CHRIS/Proba hyperspectral images from Landsat7 ETM+", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.
18. Demarchi, L., C. Lazar, D. Steenhoff, J. C.-W. Chan and F. Canters, H. Sahli and A. Nowé (2012), "A comparative study between fully automated NMF and supervised MESMA for mapping impervious surfaces", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.
19. Demarchi, L., J. C.-W. Chan and F. Canters (2012), "Combining multiangular CHRIS/Proba observations for impervious surfaces subpixel estimation using MESMA", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.
20. Alioscha-Perez, M., H. Sahli and J. C.-W. Chan (2012), "Multiscale conditional random fields for supervised region based labeling and classification", Proceedings of IGARSS 2012, Munich, Germany, July 22-27, 2012.
21. Demarchi, L., E. Ampe, F. Canters, J. C.-W. Chan, J. Dujardin, I., Bashir and O. Batelaan (2012), "Use of land-cover fractions obtained from multiple endmember unmixing of CHRIS/Proba imagery for distributed recharge and runoff estimation", 32nd EARSeL Symposium and 36th General Assembly Advances in Geosciences, 21st-24th May, 2012, Mykonos, Greece.
22. Chan, J.C.-W., P. Beckers, F. Canters, T. Spanhove, J. Vanden Borre and D. Paelinckx (2011), "Mapping Natura 2000 heathland in Belgium – an evaluation of ensemble classifiers for spaceborne angular CHRIS/Proba imagery", Proceedings of IGARSS11', July 24-29, 2011, Vancouver, Canada.
23. Demarchi, L., Ma, J., Chan, J.C.-W. and F. Canters (2011), "Mapping impervious surfaces using MESMA from superresolution enhanced CHRIS/Proba imagery in the Brussels capital region", Proceedings of IGARSS11', July 24-29, 2011, Vancouver, Canada.
24. Chan, J.C.-W., P. Beckers, T. Spanhove, J. Vanden Borre, D. Paelinckx and F. Canters (2011), "Ensemble classification of Natura2000 habitats using spaceborne angular hyperspectral imagery", the 7th EARSeL SIG Imaging Spectroscopy workshop, Edinburgh, April 11-13 2011.
25. Chan, J.C.-W., Spanhove, T., Ma, J., Vanden Borre, J., Paelinckx, D. and F. Canters (2010), "Natura 2000 habitat identification and conservation status assessment with superresolution enhanced hyperspectral (CHRIS/Proba) imagery." Proceedings of Geographic Object-Based Image Analysis conference (GEOBIA), 29 June – 2 July, Ghent. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. XXXVIII-4/C7.
26. Chan, J.C.-W. (2010), A review of superresolution enhancements for hyperspectral CHRIS/Proba images. Proceedings of ESA Hyperspectral Workshop 2010, 17-19 March 2010, ESA ESRIN, Frascati (Rome) Italy, Special Publication SP-683 on CD.
27. Demarchi, L., Canters, J.C.-W. Chan, T. Van De Voorde (2010), "Mapping sealed surfaces from CHRIS/Proba data: a multiple endmember unmixing approach", in Proceedings of 2nd Workshop on Hyperspectral Image and Signal Processing, Evolution in Remote Sensing (WHISPERS) 2010, 14-16 June 2010, Reykjavik, Iceland.
28. Demarchi, L., T. Van De Voorde, F. Canters, J. Ma, and J.C.-W. Chan (2010), "Applications of MESMA in urban and suburban environments using hyperspectral CHRIS/Proba data", EARSeL SIG Urban Remote Sensing, 22-24 September 2010, Ghent, Belgium.
29. Chan, J.C.-W., Ma, J., and F. Canters (2009), "Superresolution enhancement for temporal hyperspectral oriented data sets", IGARSS, July 13-17, 2009, Cape Town, South Africa, Vol. III, 10031006.
30. Chan, J.C.-W., Van Ophem, J. and P. Huybrecht (2009), "Estimation of accumulation area ratio of a glacier from multi-temporal satellite images using spectral unmixing", IGARSS, July 13-17, 2009, Cape Town, South Africa, vol. II, 606-609.

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47. Chan, J.C.-W. (1996), "The use of artificial neural network in land use/land cover change detection", Conference on Environmental GIS in Hong Kong and Southern China, November 20-22, 1996, Hong Kong SAR, China.

OTHER PUBLICATIONS

1. Yang, J., YQ Zhao, J.C.-W. Chan (2020), Hyperspectral-Multispectral Image Fusion Enhancement Based on Deep Learning. Book chapter in *Hyperspectral Image Analysis - Advances in Machine Learning and Signal Processing*, 407-433. Edited by S. Prasad & J. Chanussot. Springer, Advanced Computer Vision and Pattern Recognition Series.
2. T. Van de Voorde, F. Canters and J.C.-W. Chan (2011), Mapping update and analysis of the evaluation of non-built (green) spaces in the Brussels capital region, Contract ActualEvo1/09 awarded by IBGE/BIM (INSTITUT BRUXELLOIS POUR LA GESTION DE L'ENVIRONNEMENT/BRUSSELS INSTITUUT VOOR MILIEUBEHEER), 35 pp.
3. Chan, J.C.-W., R. Bellens, S. Gautama and F. Canters (2006), Detecting man-made structures in urban areas using multi-spectral and geometric classification methods, a final report of MAMASU project funded by BELGIAN SCIENCE POLICY under RESEARCH PROGRAMME FOR EARTH OBSERVATION, "STEREO" (Support to the Exploitation and Research of Earth Observation data) (SR/00/050) July 2004 – April 2006, 96 pp.
4. Chan, J.C.-W. and D. Paelinckx (2005), Application of Machine Learning Techniques for Ecotope Classification based on Hyperspectral Images, Final report of ECOMALT project funded by BELGIAN SCIENCE POLICY for HyMap Campaign 2004 under RESEARCH PROGRAMME FOR EARTH OBSERVATION, "STEREO" (Support to the Exploitation and Research of Earth Observation data) 20012006, 113 pp.
5. Sahli, H., S. Grainnger and J.C.-W. Chan (2002), State of the Art and Concepts: ClearFast (Concept for Low-risk Efficient Area Reduction Based on the Fusion of Advanced Sensor Technologies), a report deliverable to the European Commission, 85 pp.
6. Yeh, A. G-O and J.C.W. Chan (1997), "Territorial development strategy and land use changes in Hong Kong", in *Hong Kong and the Pearl River Delta as Seen From Space*, pp. 63-74, edited by Au, K.N. and Lulla, K., Geocarto International Center, 120 pp.
7. Chan, J.C.-W. (1999), A Neural Network Approach to Land Use/Land Cover Change Detection, Ph.D. Thesis, Center of Urban Planning and Environmental Management, University of Hong Kong, 240 pp.
8. Chan, C.W. (1994), Land Use Change Analysis of the Urban Fringe in the Zhujiang Delta by Remote Sensing Techniques, M. Phil. Thesis, Geography Department, the Chinese University of Hong Kong, 189 pp.

SUPERVISION

a. PHD

1. Anomaly and target detection using hyperspectral imagery (Shangzhen Song, Yixin Yang, Fei Li)
2. Semi-supervised hyperspectral classification from a small number of training samples using co-training and deep learning (Bei Fang, completed 2019)
3. Missing Information Reconstruction in Remote Sensing Imagery with Deep Learning Methods (Wenbo Li)
4. Spatial and Spectral Enhancement of Hyperspectral Image Based on Sparse representation (Chen Yi, completed 2020)
5. Hyperspectral Image Superresolution Based on Deep Learning (Jie Hu)
6. Polarization Guided Navigation with Drone Images (Mohamed Reda, completed 2018)
7. Super-resolution enhancement of hyperspectral data through image fusion and deep learning methods (Jingxiang Yang, completed 2019)
8. Remote sensing data fusion techniques for the study of forest ecosystems (Kaja Kandare, completed 2017)
9. Spectral mixing analysis for urban and sub-urban areas using hyperspectral images (Luca Demarchi, completed 2015)
10. Superresolution enhancement for multi-angle hyperspectral imagery (Jianglin Ma, completed 2012)
11. Environmental change in Lesotho: An analysis of causes and consequences of land use change in the Lowland region (Pendo Maro, completed 2008)

b. Master (Vrije Universiteit Brussel)

1. 2019. Shuoyu Hu. Assessment of machine learning algorithms for land cover/land use classification of hyperspectral imagery.
2. 2017. Li Ma. Deep Learning Based Method for PANsharpening of Multispectral Images
3. 2013. Craig Schultz. GIS multi-cluster modeling of a mine-contaminated risk area using spatial data.
4. 2013. Matthias Pens. Monitoring of Morteratsch Glacier using remote sensing methods.
5. 2012. Joachim Teunen. Quality of migratory bird habitats in Greece.
6. 2011. Juan Sebastian Durango Cordero. Detection of original mangrove in Gaoquiao, China
7. 2011. Pieter Beckers. Ensemble classifiers for ecotope mapping using hyperspectral images.
8. 2009. Liesbeth Bortels. Monitoring wetlands along the Western-Greek bird migration route using Landsat and ASTER satellite images.
9. 2008. Jeremy Van Ophem. Temporal Albedo retrieval for snowline delineation using ASTER and Landsat data.
6. 2007. Rutger Dujardin. Remote sensing study of a possible impact crater: The Luizi structure, Katanga, Congo Democratic Republic.

ORGANISATION OF SCIENTIFIC MEETINGS

- 02/06/2016 – 05/06/2016 Organizer and Chair of Special Session: Spatial Enhancement of Hyperspectral Data and Applications, 8th IEEE GRSS Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (IEEE Whispers), Los Angeles, 21-24 August, 2016.
- 02/06/2015 – 05/06/2015 Organizer and Co-Chair of Special Session: Fusion of Hyperspectral and LiDAR Data for Mapping, 7th IEEE GRSS Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (IEEE Whispers), Tokyo, Japan, 2-5 June, 2015.
- 13/07/2014 – 18/07/2014 Organizer and Chair of Invited Session “Fusion of LiDAR and Hyperspectral Data”, IEEE International Geoscience and Remote Sensing Symposium & Canadian Symposium on Remote Sensing, July 13-18, Quebec, Canada, 2014.
- 13/07/2014 – 18/07/2014 Organizer and Chair of Invited Session “Superresolution Reconstruction and Mapping of hyperspectral imagery”, IEEE International Geoscience and Remote Sensing Symposium & Canadian Symposium on Remote Sensing, July 13-18, Quebec, Canada, 2014.
- 22/07/2012 – 27/07/2012 Organizer and Chair of Invited Session “Superresolution and Sub-pixel classification for hyperspectral imagery” in IEEE International Geoscience and Remote Sensing Symposium, 22-27 July, Munich, Germany, 2012.
- 24/07/2011- 29/07/2011 Organizer and Chair of Invited Session “Superresolution and Sub-pixel classification” in IEEE International Geoscience and Remote Sensing Symposium, 24-29 July, Vancouver, Canada, 2011.
- 25/11/2010. Organizer of VUB Remote Sensing workshop

TEACHING

Digital Processing of Remotely Sensed Data. Master of Applied Computer Science, Vrije Universiteit Brussel, M.Sc. in Forest Information Technology. Warsaw University of Life Sciences.

COMMISSIONS OF TRUST

- 2017-2019 Technical Committee Member. IEEE International Geoscience and Remote Sensing Symposium
- 2018 Reviewer for NWO Domain Science, the Netherlands
- 2015 Reviewer for IEEE International Geoscience and Remote Sensing Symposium & Canadian Symposium on Remote Sensing 2015 Student Competition Paper
- 2012-2014 Scientific & Technical Program Committee member for the IEEE International Geoscience and Remote Sensing Symposium
- 2013 Reviewer for Belgian Royal Higher Institute of Defense
- 2012-2015 Reviewer for the National Research Council of Romanian Government
- 2012 External Expert Panel member for European Communities COST DG-ICT (Information and Communication Technologies) and TDP (Trans-Domain Proposals)

RECENT TALKS AND SEMINARS

2019 July. Summer visits. Seminars *Research perspectives in Earth Observation hyperspectral remote sensing* at Harbin Engineering University (Harbin), XiDian University (Xian), Northwestern Polytechnical University (Xian), Nanjing University of Science and Technology (Nanjing), Institute of Remote Sensing and Digital Earth at Chinese Academy of Science (Beijing).

2019 July. Earth Observation Remote sensing – Image processing and scene understanding. International Summer School. Northwestern Polytechnical University (Xi'An China).

2018 July. Earth Observation Remote sensing – Image processing and scene understanding. International Summer School. Northwestern Polytechnical University (Xi'An China).

2018 Nov 5. Remote Sensing crash course (4 hrs) Vrije Universiteit Brussel

2017-10-25 to 11-18 Lecture Seminar series with eight talks.

Earth Observation Remote Sensing–Scene Interpretation and Image Processing
School of Computer Science, Northwestern Polytechnical University, Xian, CHINA.

2017-11-05 Land cover mapping and spatial enhancement for Earth Observation hyperspectral remote sensing. Xidian University, XiAn, China.

2017-5-4 Learning Deep Features for Hyperspectral Classification and Image Fusion. Future Research Perspectives in EO Hyperspectral Remote Sensing
Seminar at German Aerospace Center Oberpfaffenhofen, Germany

2017-4-12 to 13 Hyperspectral Remote Sensing In Research
Doctoral School VUB events. Two half-day seminars. Vrije Universiteit Brussel, Brussels, Belgium

2017-3-24 Doing Research in the U.S. and EUROPE
Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA

2017-3-17 High Resolution Earth Observation Hyperspectral Spaceborne Missions in the Next Decades
Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA

2017-3-16 Recent Development in Hyperspectral Remote Sensing — Perspectives in Research Opportunities for Big Data, Enhancement and Processing
Mathematics and Statistics Department, Xi'An JiaoTong University, Xi'An China

2016-12-1 (Invited Talk) How to write a scientific paper. Public Seminar. Warsaw University of Life Sciences, SGGW. Poland

2016-11-9 (Invited Talk) Spectroscopy imaging and hyperspectral Earth Observation remote sensing. Geospatial Engineering and Innovation Center, King Mongkut's University of Technology Thonburi (KMUTT), Thailand.

2016-10-16 Natura 2000 ecotope mapping using airborne hyperspectral data. Public Seminar. Warsaw University of Life Sciences, SGGW. Poland

2016-07-05 Recent development, future perspective and application of Earth Observation Hyperspectral remote sensing. Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA

2015-03-13 Ecotope Mapping using hyperspectral airborne data and multi-angle satellite CHRIS/Proba images. School of Geodesy and Geomatics, Wuhan University, Wuhan CHINA.

2015-03-17 Textural contextual information and spatial enhancement with superresolution. Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA

2015-03-12 Image Classification – Information extraction from remote sensing image. Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA

2015-03 Earth Observation remote sensing topics – opportunities for image processing automation. Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA

2014-04-01 Land Cover Characterization with Super-resolution Enhanced Hyperspectral Imagery from Multi-angle CHRIS/Proba. Faculty of Automation, Northwestern Polytechnical University, Xi'An, CHINA