

Curriculum vitae — Professor Dr. Mats I. Pettersson

Adress: Blekinge Tekniska Högskola (BTH), 37179 Karlskrona

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Year and place of Birth: 1966, Karlskrona, Sweden

ORCID: <http://orcid.org/0000-0002-6643-312X>

1. Doctoral degree

Degree:	<i>Ph.D.</i>
Subject Area:	Signal Processing
University:	Chalmers University of Technology, Gothenburg, Sweden
Year:	2000
Title:	Contribution to Wideband SAR Space-Time Processing, and Radar Remote Sensing of Sea Ice
Degree:	<i>Licentiate of Engineering</i>
Subject Area:	Radio and Space Science
University:	Chalmers University of Technology, Gothenburg, Sweden
Year:	1995
Title:	Microwave Remote Sensing of Arctic Sea Ice during Freeze-up using Radar and Passive Radiometry

2. Higher education degree

Degree:	<i>M.Sc. Engineering Physics</i>
University:	Chalmers University of Technology, Gothenburg, Sweden
Year:	1993

3. Present position

Title:	<i>Full Professor (2011-)</i>
Year:	2005-
Placement:	Department of Mathematics and Natural Science, Blekinge Institute of Technology, Karlskrona, Sweden

4. Academic and project responsibilities

- 2012- *Research director* for RSG group
- 2019- *Project leader* at BTH for the project “Radio Occultation Accuracy for Climate, Meteorology, and Space Weather”, founded by NRFP – Swedish National Space Agency
- 2019- *National pedagogic evaluator* of teachers pedagogic portfolio
- 2020- *Project leader* for the project “Multistatic high-resolution sensing at THz”, founded by ELLIIT
- 2021- *Chair* at section F in Swedish National Committee for Radio Science (SNRV)

5. Previous positions

- Blekinge Institute of Technology (BTH)**
- 2016-2018 *Member* at Board of Governors, BTH (3 years)
- 2011-2013 *Member* at BTH education board (3 years)
- 2011-2014 *Vice chairman* at BTH academic appointments board (3 years)
- 2010-2011 *Research director* at School of Engineering, BTH (2 years)
- 2015-2019 *Special Visiting Researcher - PVE* at Instituto Tecnológico de Aeronáutica (ITA)Brazil
- 2016-2019 *Project leader* at BTH for the research project “TENTacle”, founded by Interreg Baltic Sea Region, European Union
- 2015-2019 *Project leader* at BTH for the research project “Radio Occultation Inversion Methods”, founded by NRFP – Swedish National Space Agency
- 2015-2018 *Project leader* at BTH for the external research project “Novel image inversion algorithms based on Doppler measurement for security and climate monitoring”, founded by The Swedish Knowledge Foundation
- 2006-2016 *Project leader* for various external research projects

- Swedish Defence Research Establishment (FOI)**
- 1998-2007 *Researcher and First researcher*
Dept. of Surveillance Radar, Div. of Sensor Technology, Swedish Defence Research Agency
Linköping, Sweden
- 2001-2007 *Project leader* for two big FOI projects, Div. of Sensor Technology, Swedish Defence Research Agency
Linköping, Sweden

- Ericsson**
- 1996-1997 *Patent Project Manager (almost 2 years)*
Ericsson Mobile Communication AB
Lund, Sweden

Chalmers University of Technology

1993-1995

Ph.D. Student

Radio and Space Science

School of Electrical Engineering, Chalmers University of
Technology, Gothenburg, Sweden

6. Active PhD students and individuals who have completed their doctoral degree or postdoctoral period under my supervision

Active PhD students with me as supervisor:

Name: Simon Nilsson Year: 2020

Name: Thomas Pernstål Year: 2017

Name: Muhammad Rameez Year: 2017

Name: Thomas Sievert Year: 2016

Name: Vinícius Ludwig Barbosa Year: 2016

Individuals who completed their doctoral degree under my supervision:

Name: Saleh Javadi Year: 2021

Name: Svante Björklund Year: 2017

Name: T.K. Sjögren Year: 2012

Name: Imran Iqbal Year: 2012

Name: Vu Viet Year: 2011

Name: Eric Östlin Year: 2009

Name: Viktoria Tegborg¹ Year: 2008

Individuals who had postdoctoral period under my supervision:

Name: Bruna Gregory Palm Year: 2021-

Name: Saleh Javadi Year: 2021-

Name: Yevhen Ivanenko Year: 2020-

Name: Natanael Rodrigues Gomes Year: 2016-2017

Name: Vu Viet Year: 2012-2016

Name: Renato Machado Year: 2013-2015

Visiting PhD Students who did one year under my supervision

Name: Alexandre Campos Year: 2020

Name: Bruna Gregory Palm Year: 2018-2019

Name: Dimas Irion Alves Year: 2018-2019

7. Short Biografi

Mats Pettersson has worked for more than 25 years in the field of radar systems research at BTH, FOI and at Chalmers. For all years his research has oriented to new radar signal processing algorithms for future radar surveillance and radar remote sensing systems. He has developed new Synthetic Aperture Radar (SAR) algorithms and he has done important work for monostatic, bistatic, multi-static radar and circular SAR systems. For these systems he has also achieved algorithms for detection and estimation of various type of targets but focusing on moving objects and change detection between images. Therefore, a combination of SAR processing and array signal processing has been an important part of the research. The developed algorithms do not only consider the common narrow band radar systems but are mainly developed for future UWB

¹ Licentiate degree

band systems that give resolutions below the operating wavelength. He has also experience of modelling electromagnetic scattering, radio communication and in the latest years he has started research into the fields of Radio Occultation, automotive radar and optical images for traffic and transport. For Radio Occultation the focus has been algorithm development to handle Earth and Ionosphere reflections and in automotive radar it has been to handle the increasing problem of interference. The optical image analyses research has increased his interest in AI and machine learning algorithms that has also got a spin off into radar research.

8. Experience of industrial and international research collaboration

Mats has during the years at FOI and BTH been an active project leader. At moment, he is the project leader of two external projects. He has been the main project leader/applicant for totally 15 research projects with approximate *90 million SEK* in external funding. Almost all those projects have been in close collaboration with industry. Therefore, Mats has a long experience of national and international research collaboration. At this moment, the main national collaborators are RUAG Space, Saab, Safe Radar, Swedish Transport Administration, Swedish Transport Agency and FOI. Internationally he is collaborating with *ITA*, Brazil, *University of Duisburg*, Germany *Airbus Defence and Space*, Germany, *Alberta University*, Canada and “Forschungszentrum der Bundesrepublik Deutschland für Luft- und Raumfahrt” (*DLR*), Germany. In the past, his research groups has been collaborating with e.g. *NASA*, USA, *DERA*, UK, *Air Force Research Laboratory (AFRL)*, USA, *DARPA*, USA, *Office National d'Études et de Recherches Aérospatiales(ONERA)*, France, *ESA*, European

Publication list Professor Mats I. Pettersson

1. Peer-reviewed articles

B.G. Palm, F.M. Bayer, R. Machado, M.I. Pettersson, V.T Vu, , R.J. Cintra, “Robust Rayleigh Regression Method for SAR Image Processing in Presence of Outliers”, **IEEE Transactions on Geoscience and Remote Sensing**, Available as early access article in *IEEEExplore*, 2021

V.T Vu, M.I. Pettersson, ”Sidelobe Control for Bistatic SAR Imaging”, **IEEE Geoscience and Remote Sensing Letter**, Available as early access article in *IEEEExplore*, 2021

D.I. Alves, Cristian Müller, B.G. Palm, M.I. Pettersson, V.T. Vu,,R. Machado, B.F. Uchôa-Filho P. Dammert, and H. Hellsten, “Neyman-Pearson Criterion-Based Change Detection Methods for Wavelength-Resolution SAR Image Stacks”, **IEEE Geoscience and Remote Sensing Letter**, Available as early access article in *IEEEExplore*, 2021

A.B. Campos, V.T. Vu, M.I. Pettersson, R. Machado, “False Alarm Reduction in Wavelength-Resolution SAR Change Detection Schemes by Using a Convolutional Neural Network”, **IEEE Geoscience and Remote Sensing Letter**, Available as early access article in *IEEEExplore*, 2021

J.G. Vinholi, D. Silva, R. Machado, M.I. Pettersson, “CNN-Based Change Detection Algorithm for Wavelength-Resolution SAR Images”, **IEEE Geoscience and Remote Sensing Letter**, Available as early access article in *IEEEExplore*, 2021

V.T. Vu, Thomas K. Sjögren, Mats I. Pettersson, ”New Forms of Likelihood Ratio Test for SAR Change Detection”, ”, **IEEE Access**, Vol. 9, 2021, pp. 127906-127916

V.L. Barbosa, T. Sievert, A. Carlström, M.I. Pettersson, V.Vu, J. Rasch, ”Supervised Detection of Ionospheric Scintillation in Low-Latitude Radio Occultation Measurements”, **Remote Sensing**, Vol 13, Issue 9, 2021

V.T Vu, M.I. Pettersson, B.G. Palm, D.I. Alves, N.R. Gomes, “Changing flight heading during pass to enhance SAR change detection performance”, **IET Radar Sonar Navigation**, pp. 1-10, 2021

S. Javadi, M. Dahl, M.I. Pettersson, “Vehicle Detection in Aerial Images Based on 3D Depth Maps and Deep Neural Networks”, **IEEE Access**, Vol. 9, 2021, pp. 8381-8391

M. Rameez, M. Dahl, M.I. Pettersson, “Autoregressive Model-Based Signal Reconstruction for Automotive Radar Interference Mitigation”, **IEEE Sensor Journal**, Vol. 21, Issue 5, 2021

L.P. Ramos, A.B. Campos, C. Schwartz, L.T. Duarte, D.I. Alves, M.I. Pettersson, V.T. Vu, R. Machado, “A Wavelength-Resolution SAR Change Detection Method Based on Image Stack through Robust Principal Component Analysis”, **Remote Sensing**, Vol 13, Issue 5, 2021

T. Sievert, J. Rasch, A. Carlström, V.L. Barbosa, M.I. Pettersson, V.Vu, "Using a Sliding Window Phase Matching Method for Imaging of GNSS Radio Occultation Signals", **Remote Sensing**, Vol 13, Issue 5, 2021

D.I. Alves, B.G. Palm, H. Hellsten, V.T. Vu, M.I. Pettersson, R. Machado, B.F. Uchôa-Filho and P. Dammert, "Wavelength-resolution SAR change detection using Bayes' theorem", **IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing**, Vol. 13, 2020, pp. 5560-5568

V.L. Barbosa, J. Rasch, A. Carlström, M. I. Pettersson, V.T. Vu, "GNSS Radio Occultation Simulation Using Multiple Phase Screen Orbit Sampling", **IEEE Geoscience and Remote Sensing Letter**, Vol 17, No. 8, 2020

C. Schwartz, L.P. Ramos, L.T. Duarte, M.S. Pinho, M.I. Pettersson, V.T Vu, R. Machado, "Change Detection in UWB SAR Images Based on Robust Principal Component Analysis", **Remote Sensing**, Vol 12, Issue 12, 2020

B.G. Palm, D.L. Alves, M.I. Pettersson, V.T Vu, R. Machado, R.J. Cintra, F.M. Bayer, P. Dammert, H. Hellsten, "Wavelength-Resolution SAR Ground Scene Prediction Based on Image Stack", **Sensors**, Vol. 20, Issue 7, 2020

S. Javadi, M. Dahl, M.I. Pettersson, "Change Detection in Aerial Images Using Three-Dimensional Feature Maps", **Remote Sensing**, Vol. 12, Issue 9, 2020

V.L. Barbosa, T. Sievert, J. Rasch, A. Carlström, M. I. Pettersson, V.T. Vu, "Evaluation of Ionospheric Scintillation in GNSS Radio Occultation Measurements and Simulations", **Radio Science**, Vol. 55, Issue 8, 2020

D.I. Alves, B. G. Palm, M.I. Pettersson, V.T.Vu, R. Machado, B.F. Uchôa-Filho, P. Dammert, and H. Hellsten "A Statistical Analysis for Wavelength-Resolution SAR Image Stacks", **IEEE Geoscience and Remote Sensing Letter**, vol 17, Issue 2, 2020, pp. 227-231

B.G. Palm; F.M. Bayer; R.J. Cintra; M.I. Pettersson; R. Machado, "Rayleigh Regression Model for Ground Type Detection in SAR Imagery", **IEEE Geoscience and Remote Sensing Letter**, vol. 16, Issue 10, 2019

N.R. Gomes, P. Dammert, M.I. Pettersson, V.T. Vu, H. Hellsten, "Comparison of the Rayleigh and K-Distributions for Application in Incoherent Change Detection", **IEEE Geoscience and Remote Sensing Letter**, Vol 16, Issue 5, pp. 756-760, 2019

S. Javadi, M. Dahl, M.I. Pettersson, "Vehicle speed measurement model for video-based systems", **Computers and Electrical Engineering**, Vol 76, pp. 238-248, 2019

V.T Vu, N.R. Gomes, M.I. Pettersson, P. Dammert, H. Hellsten, "Bivariate Gamma Distribution for Wavelength-resolution SAR Change Detection", **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 57, Issue 1, 2019

V.T. Vu, M.I. Pettersson, P. Dammert, H. Hellsten "Two-Dimensional Data Conversion for One-Dimensional Adaptive Noise Canceler in Low-Frequency SAR Change Detection", **IEEE Transactions on Aerospace and Electronic Systems**, Vol. 54, Issue 5, 2018

V.T. Vu, M.I. Pettersson, "Derivation of Bistatic SAR Resolution Equations Based on Backprojection", **IEEE Geoscience and Remote Sensing Letter**, Vol. 15, Issue 5, pp. 694-698, 2018

T. Sievert, J. Rasch, A. Carlström and M.I. Pettersson, "Analysis of reflections in GNSS radio occultation measurements using the phase matching amplitude", **Atmospheric Measurement Techniques**, <https://doi.org/10.5194/amt-2017-216>, 2018

V.T. Vu, Mats I. Pettersson, Thomas K. Sjögren, "Moving Target Focusing in SAR Image With Known Normalized Relative Speed", **IEEE Transactions on Aerospace and Electronic Systems**, Vol. 53, No. 2, pp. 854-861, 2017

V.T. Vu, M.I. Pettersson, R. Machado, P. Dammert, H. Hellsten, "False Alarm Reduction in Wavelength-Resolution SAR Change Detection Using Adaptive Noise Canceler", **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 55, No. 1, pp. 591-599, 2017

R. Machado, V.T. Vu, M.I. Pettersson, P. Dammert, H. Hellsten, "The Stability of UWB Low-Frequency SAR Images", **IEEE Geoscience and Remote Sensing Letter**, Vol. 13, No. 8, pp. 1114-1118, 2016

S. Björklund, P. Grahn, A. Nelander and M.I. Pettersson, "Measurement of Rank and Other Properties of Direct and Scattered Signals", **International Journal of Antennas and Propagation**, Article ID 5483547, Vol. 2016, 2016

V.T. Vu, M.I. Pettersson, "Fast Backprojection Algorithms Based on Subapertures and Local Polar Coordinates for General Bistatic Airborne SAR Systems", **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 54, No. 5, pp. 2706-2712, 2016

M.I. Pettersson, T.K. Sjögren, V.T. Vu, "Performance of Moving Target Parameter Estimation Using SAR", **IEEE Transactions on Aerospace and Electronics Systems**, Vol. 51, No. 2, 2015

D. Oloumi, M.I. Pettersson, M.I., P. Mousavi, K. Rambabu, "Imaging of Oil-Well Perforations Using UWB Synthetic Aperture Radar", **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 53, No. 8, pp. 4510-4520, 2015

V.T. Vu, M.I. Pettersson, "Nyquist Sampling Requirements for Polar Grids in Bistatic Time-Domain Algorithms", **IEEE Transactions on Signal Processing**, Vol 63, No. 2, pp. 457-465, 2015

V. T. Vu, T. K. Sjögren, and M. I. Pettersson, "Two-Dimensional Spectrum for BiSAR Derivation Based on Lagrange Inversion Theorem", **IEEE Geoscience and Remote Sensing Letter**, Vol. 11, No. 7, 2014

T. K. Sjögren, V. T. Vu, M. I. Pettersson, F. Wang, A. Gustavsson, D. Murdin and L.M.H. Ulander, "Suppression of Clutter in Multichannel SAR GMTI" **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 52, No 7, 2014

- D. Oloumi, P. Mousavi, M.I. Pettersson and D. Elliott, "A Modified TEM Horn Antenna Customized for Oil Well Monitoring Applications", **IEEE Transaction on Antennas and Propagation**, Vol. 61, No. 12, pp. 5902 – 5909, 2013
- S. Björklund, A. Nelander and M.I. Pettersson, "Auxiliary beam terrain-scattered interference suppression: reflection system and radar performance", **IET Radar, Sonar and Navigation**, Volume 7, No. 3, pp. 836-847, 2013
- V. T. Vu, T. K. Sjögren, and M. I. Pettersson, "Fast time-domain algorithms for UWB bistatic SAR processing," **IEEE Transactions on Aerospace and Electronics Systems.**, vol. 49, no. 3, pp. 1982-1994, 2013
- V. T. Vu, T. K. Sjögren and M. I. Pettersson, "Phase Error Calculation for Fast Time-Domain Bistatic SAR Algorithms", **IEEE Transactions on Aerospace and Electronics Systems**, vol. 49, no. 1, pp. 631–639, 2013
- V. T. Vu, T. K. Sjögren and M. I. Pettersson, "On Synthetic Aperture Radar Azimuth and Range Resolution Equations", **IEEE Transactions on Aerospace and Electronics Systems**, vol. 48, no. 2, pp. 78–83, 2012.
- T.K. Sjögren, V.T. Vu, M.I. Pettersson, A. Gustavsson, L.M.H. Ulander, "Moving Target Speed Estimation and Refocusing in SAR images", **IEEE Transactions on Aerospace and Electronics Systems**, vol. 48, no. 3, pp. 2426–2436, 2012.
- V. Tegnberg, M.I. Pettersson, I. Claesson, "Experimental results of passive imaging of moving continuous broadband sound sources within a sensor field", **IEEE Journal of Oceanic Engineering**, vol. 36, no. 1, pp. 26-37, 2011
- V. T. Vu, T. K. Sjögren, M. I. Pettersson, and H. Hellsten, "An impulse response function for evaluation of ultra-wideband SAR imaging," **IEEE Transactions on Signal Processing**, vol. 58, no. 7, pp. 3927-3932, 2010.
- V. T. Vu, T. K. Sjögren, and M. I. Pettersson, "Ultra-wideband chirp scaling algorithm," **IEEE Geoscience and Remote Sensing Letter**, vol. 7, no. 2, pp. 281-285, 2010.
- V. T. Vu, T. K. Sjögren, M. I. Pettersson, L. Håkansson, A. Gustavsson, and L. M. H. Ulander, "RFI suppression in ultrawideband SAR using an adaptive line enhancer," **IEEE Geoscience and Remote Sensing Letter**, vol. 7, no. 4, pp. 694-698, 2010.
- V. T. Vu, T. K. Sjögren, M. I. Pettersson, A. Gustavsson, and L. M. H. Ulander, "Detection of moving targets by focusing in UWB SAR Theory and experimental results," **IEEE Transaction on Geoscience and Remote Sensing**, vol. 48, no. 10, pp. 3799-3815, 2010.
- I. Gustavsson, K. Nilsson, J. Zackrisson, J. Garcia-Zubia, U. Hernandez-Jayo, A. Nafalski, Z. Nedic, Ö. Göl, J. Machotka, M.I. Pettersson, T. Lagö, L. Håkansson, "On objectives of instructional laboratories, individual assessment, and use of collaborative remote laboratories", **IEEE Transactions on Learning Technologies**, Vol. 2, No. 4, 2009

K. Nilsson, J. Zackrisson, M. Pettersson, "Remote Access of Computer Controlled Experiments", **International Journal of Online Engineering (iJOE)**, Vol. 4, No. 4, 2008, pp. 52-56

M.I. Pettersson, "Optimum relative speed discretization for detection of moving objects in wide band SAR, **IET(IEE) Radar, Sonar and Navigation**", Vol. 1, No. 3, 2007, pp. 213-220

M.I. Pettersson, "Detection of moving target in wideband SAR", **IEEE Transactions on Aerospace and Electronics Systems**, Vol. 40, No. 3, July 2004, p 780-9

M.I. Pettersson "Extraction of moving ground targets by a bistatic ultra-wideband SAR", **IEE Proceedings, Radar, Sonar and Navigation**, Vol. 148, No. 1, 2000, pp. 35-40.

W. Dierking, M.I. Pettersson and J. Askne, "Multi-frequency scatterometer measurements of Baltic Sea Ice during EMAC-95", **International Journal of Remote Sensing**, vol. 20, No. 2, 1999, pp. 349-372

M.I. Pettersson, J. Askne and D.J. Cavalieri, "SAR observations of Arctic freeze-up as compared to SSM/I during ARCTIC91", **International Journal of Remote Sensing**, vol. 17, No. 13, 1996, pp. 2603-2624

2. Peer-reviewed conference papers

G.H.M. Voigt, D.I. Alves, C. Muller, R. Machado, V.T. Vu, M.I. Pettersson, "Change Detection Method for Intensity VHF Wavelength-Resolution SAR images", Conf. 11862, SPIE Remote Sensing, Proceedings of SPIE Vol. 10788, Madrid, 2021

Y. Ivanenko, , V.T. Vu, M.I. Pettersson, "Interpolation Methods for SAR Backprojection at THz Frequencies", International Workshop on Mobile THz Systems (IWMTS), Virtual conference, 2021

V.T. Vu, M.I. Pettersson, "Terahertz Three-Dimensional SAR Imaging Using Time- and Frequency-Domain Algorithms", International Workshop on Mobile THz Systems (IWMTS), Virtual conference, 2021

L.P. Ramos, C. Schwartz, D. Alves, D.L. Tomazeli, M.I. Pettersson, V.T. Vu, R. Machado, "Change detection in UWB VHF SAR images exploiting flight heading diversity through robust principal component analysis", Proceedings of SPIE, Vol. 11533, SPIE Remote Sensing, Security + Defence, and Space, Satellites and Sustainability Symposia 2020

T. Pernstål, J. Degerman, V.T. Vu, M.I. Pettersson, "GIP Test for Automotive FMCW Interference Detection and Suppression", 2020 IEEE Radar Conference, Virtual Conference, 2020

D. Alves, C. Muller, P. Kunz de Jesus, V.T. Vu, M.I. Pettersson, R. Machado, B.F. Uchôa-Filho, "Incoherent Change Detection Methods for Wavelength-Resolution SAR Image Stacks Based on Masking Techniques", 2020 IEEE Radar Conference, Virtual Conference, 2020

V.T. Vu, M.I. Pettersson, T. Sjögren, "Change detection and signature classification for SAR GMTI", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2020, Virtual Symposium, 2020

D. Alves, C. Muller, B. Palm, V.T. Vu, M.I. Pettersson, R. Machado, B.F. Uchôa-Filho, "Statistical Analysis for Wavelength-Resolution SAR Image Stacks: New Case Studies", 38th Brazilian Telecommunications and Signal Processing Symposium – SBrT2020, Brazil, 2020

B. Palm, D. Alves, R. Machado, V.T. Vu, M.I. Pettersson, "Computer-Simulated UWB VHF SAR Targets Based on Statistics of Real Data", 38th Brazilian Telecommunications and Signal Processing Symposium – SBrT2020, Brazil, 2020

A. Campus, R.M. Molin, M. Pettersson, V.T. Vu, R. Machado, "Unsupervised automatic target detection for multitemporal SAR images based on adaptive K-means algorithm", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2020, Virtual Symposium, 2020

A. Batra, Y. Zantah, V. T. Vu, M. Wiemeler, M. I. Pettersson, D. Goehringer and T. Kaiser, "Experimental Analysis of High Resolution Indoor THz SAR Imaging", 24th International ITG Workshop on Smart Antennas (WSA 2020), Hamburg, Germany, 2020

V.T. Vu, M.I. Pettersson, T. Sjögren, "Enhancing conventional SAR change detection performance with apodization", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2020, Virtual Symposium, 2020

- A. Batra, V. T. Vu, Y. Zantah, M. Wiemeler, M. I. Pettersson, D. Goehringer and T. Kaiser, "Sub-mm Resolution Indoor THz Range and SAR Imaging of Concealed Object ", IEEE MTT-S International Conference on Microwaves for Intelligent Mobility, ICMIM 2020, Virtual Conference, 2020
- V.T. Vu, M.I. Pettersson, T. Sjögren, "Conventional SAR Change Detection Using Methods for Non-Conventional SAR", 2020 IEEE International Radar Conference, Virtual Conference, 2020
- M. Rameez, M. Dahl, M.I. Pettersson, "Experimental Evaluation of Adaptive Beamforming for Automotive Radar Interference Suppression", IEEE Radio and Wireless Symposium, pp. 183-186, 2020
- S. Javadi, M. Dahl, M.I. Pettersson, "Adjustable Contrast Enhancement Using Fast Piecewise Linear Histogram Equalization", 3rd International Conference on Image and Graphics Processing, Singapore, pp. 57-61, 2020
- V.T. Vu, D. Alves, B. Palm, N. Gomes, M. Pettersson, "Wavelength-resolution SAR Change Detection with Changing Flight Heading During Passes", International Radar Conference, Toulon, France, 2019
- A.B. Campos, R.D. Molin Jr., M.I. Pettersson, and R. Machado, "Discrimination Algorithm for False Alarm Reduction in SAR Incoherent Change Detection", 37th Brazilian Telecommunications and Signal Processing Symposium – SBrT2019, Petrópolis, Brazil, 2019
- R. Molin Jr, R. Rosa, F. Bayer, M. Pettersson, R. Machado, "A Change Detection Algorithm for SAR Images based on Logistic Regression", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2019, Yokohama, Japan, 2019
- V.T. Vu, M.I. Pettersson, T. Sjögren, M. Dahl, "A Measurement Campaign in Harbor to Detect Changes of Activities", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2019, Yokohama, Japan, 2019
- V.T. Vu, M.I. Pettersson, N.R. Gomes, "Stability in SAR Change Detection Results using Bivariate Rayleigh Distribution for Statistical Hypothesis Test", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2019, Yokohama, Japan, 2019
- V.T. Vu, D.I. Alves, B. Palm, M.I. Pettersson, P. Dammert, H. Hellsten, "A Detector for Wavelength Resolution SAR Incoherent Change Detection", IEEE Radar Conference, Boston, USA, 2019
- B. Palm, D. Alves, V. Vu, M. Pettersson, F. Bayer, R. Cintra, R. Machado, P. Dammert, H. Hellsten, "Autoregressive models for wavelength resolution SAR change detection", Conf. 10788, Active and Passive Microwave Remote Sensing for Environmental Monitoring, Proceedings of SPIE Vol. 10788, Berlin, 2018
- T. Sievert, J. Rasch, A. Carlström, M I. Pettersson, "Comparing reflection signatures in radio occultation measurements using the full-spectrum inversion and phase matching methods,

Conf. 10786, Remote Sensing of Clouds and the Atmosphere, Proceedings of SPIE Vol. 10786, Berlin, 2018

M.S. Javadi, M. Rameez, M. Dahl, M.I. Pettersson, "Vehicle Classification Based on Multiple Fuzzy C-Means Clustering Using Dimensions and Speed Features", 22nd International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, Science direct, Procedia Computer Science 126, 1344–1350, 2018

M.S. Javadi, M. Dahl, M.I. Pettersson and W.J. Kulesza , "Design of A Video-Based Vehicle Speed Measurement System - Uncertainty Approach" International Conference on Imaging, Vision & Pattern Recognition (ICIVPR), Fukuoka, Japan, 2018

M. Rameez, M. Dahl, M.I. Pettersson, "Adaptive Digital Beamforming for Interference Suppression in Automotive FMCW Radars", IEEE Radar Conference, Oklahoma City, USA, 2018

V.T. Vu, M.I. Pettersson, "Range Migration Algorithm for Bistatic SAR", IEEE Radar Conference, Oklahoma City, USA, 2018

V.T. Vu, M.I. Pettersson, T.K. Sjögren, A. Gustavsson, "A hybrid GMTI method for reliable detection results in SAR images", International Conference on Recent Advances in Signal Processing, Telecommunications and Computing, SIGTELCOM 2018, Ho Chi Minh, Vietnam, 2018

T.K. Sjögren, P. Frörlind, R. Ragnarsson, A. Haglund, A. Gustavsson, L.M.H. Ulander, V.T. Vu, M.I. Pettersson, "Simultaneous passive SAR imaging and detection of airborne targets", Radar 2017 - International Conference on Radar Systems, Belfast, United Kingdom, 2017

V.L. Barbosa, J. Rasch, A. Carlström, M. I. Pettersson, V.T. Vu, "A Simulation Study of the Effect of Ionospheric Vertical Gradients on the Neutral Bending Angle Error for GNSS Radio Occultation", Progress In Electromagnetics Research Symposium - PIERS 2017, Singapore, 2017

M.I. Pettersson, V.T. Vu, N.R. Gomes, P. Dammert, H. Hellsten, "Incoherent Detection of Man-Made Objects Obscured by Foliage in Forest Area", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2017, Fort Worth, Texas, USA, 2017

V.T. Vu, M.I. Pettersson, T. Sjögren, M. Dahl, "Measurement of Traffic Flows with SAR – Field Test on the Swedish Road Network", IEEE Geoscience and Remote Sensing Symposium, IGARSS 2017, Fort Worth, Texas, USA, 2017

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I have written more scientific and technical reports during my time as an employee at FOI and Ericsson that are not public.