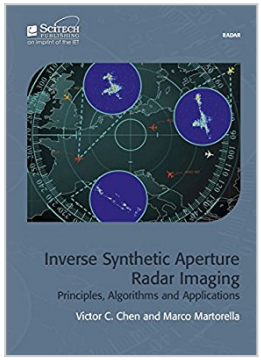

Inverse Synthetic Aperture Radar Imaging: Principles, Algorithms, and Applications (Electromagnetics and Radar)

By Victor C. Chen, Marco Martorella

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This book is based on the latest research on ISAR imaging of moving targets and non-cooperative target recognition (NCTR). It focuses on how to generate high-resolution ISAR images of targets of interest and how to deal with factors that affect the process. It also looks at extracting information from ISAR images and performing non-cooperative target recognition (NCTR) of moving targets.

Inverse Synthetic Aperture Radar Imaging covers the more detailed image formation and auto-focusing algorithms as well as applications of these algorithms to real world ISAR imaging. It also includes MATLAB source codes for the simulation of radar scattering from moving targets, implementations of ISAR image formation, auto-focusing, and imaging time selection, and simulations of bi-static and multi-static ISAR imaging algorithms.

Inverse Synthetic Aperture Radar Imaging provides readers with a working knowledge of the subject. Some key topics include: monostatic and bistatic RCS models for ISAR, point spread function and 2-D imaging, polarimetric ISAR, interferometry in ISAR, bandwidth extrapolation technique in ISAR, multi-window spectrum estimation, clean algorithm, effect of rotational motion on ISAR imaging, selection of optimal imaging timewindow, ISAR imaging in low SNR and in strong clutter, micro-Doppler features in ISAR, estimation of rotation in ISAR, multipath in ISAR, distortion analysis for bistatic ISAR, emulated bistatic ISAR, and multistatic ISAR.

This is essential reading for academics, graduates, and government and industry professionals. Both newer engineers and experts in radar should find this book of interest.

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Editorial Review

Review
"This new text is an excellent addition to the radar literature for both students and experienced practitioners. Both Dr Chen and Prof. Martorella are mature lecturers, and this shows in the development of the algorithms from the basic physics to the advanced radar applications. Most importantly, their Matlab code closely follows the chapters, and demystifies the science. This text can be equally used for both graduate level courses and for development of radar applications in industry." (Mark E Davis, Life Fellow IEEE)

About the Author
Victor C. Chen has been with the Radar Division, NRL for almost 20 years working on radar signal and imaging, non-cooperative target recognition, time-frequency analysis and its applications to radar, and radar micro-Doppler signature analysis. He has published more than 130 papers and articles in books, chapters in books, journals and proceedings.

Marco Martorella has co-authored about 20 journal papers and 40 conference papers and has given short courses, lectures, tutorials and seminars in several research institutions in US, Australia, South Africa and Europe. His research interests are mainly in the field of radar imaging.

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