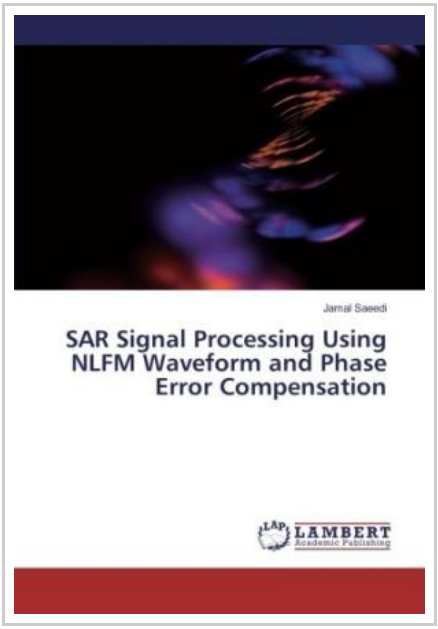

SAR Signal Processing Using NLFM Waveform and Phase Error Compensation

By Jamal Saeedi

LAP Lambert Academic Publishing Mai 2016, 2016. Taschenbuch. Book Condition: Neu. 220x150x10 mm. This item is printed on demand - Print on Demand Neuware - In this book, signal processing issues of synthetic aperture radar (SAR) have been under consideration. Specifically, we have focused on two topics in the field of SAR signal processing in this research consisting of nonlinear frequency modulation (NLFM) signal in SAR imaging, and phase error compensation using a new autofocus algorithm. In the first study, a new NLFM waveform is developed, which can be used as a transmitted chirp in SAR imaging to improve the imaging quality compared to LFM chirp signal. The new NLFM is constructed based on pricewise linear functions which is optimized using multi-objective optimization. Different signal prospecting algorithms including time domain correlation, back-projection, omega-k, and range-Doppler algorithm are investigated in order to use NLFM as the transmitted chirp in SAR system. In the second study, a new autofocus algorithm is proposed for back-projection (BP) image formation of SAR imaging. The approach is based on maximizing an objective function obtained by prominent points in different sub-apertures of constructed SAR image by varying the flight trajectory parameters. 164 pp. Englisch.

Reviews

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