

JING(MARY) MING

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EDUCATION

University of Electronic Science and Technology of China

Sep. 2017 - Jul. 2020(expected)

M.Eng. in Signal and Information Processing

Overall GPA: 3.25/4

University of Electronic Science and Technology of China

Sep. 2013 - Jul. 2017

B.Eng. in Electronic Information Engineering

Overall GPA: 3.91/4 Major GPA: 3.99/4 Ranking: Top 5%

PUBLICATIONS

Jing Ming, Xiaoling Zhang, Ling Pu, Jun Shi. "PSF Analysis and Ground Test Results of a Novel Circular Array 3-D SAR System." *Journal of Radars*, vol. 7, no. 6, pp. 770-776, Dec. 2018. doi: 10.12000/JR18068

Wei, S.; Su, H.; **Ming, J.**; Wang, C.; Yan, M.; Kumar, D.; Shi, J.; Zhang, X. "Precise and Robust Ship Detection for High-Resolution SAR Imagery Based on HR-SDNet." *Remote Sens.* 2020, 12, 167.

B. Tian, X. Zhang, S. Wei, **Jing Ming**, *et al.*, "A Fast Sparse Recovery Algorithm via Resolution Approximation for LASAR 3D imaging," in *IEEE Access*. doi: 10.1109/ACCESS.2019.2959128

D. Ma, X. Zhang, X. Tang, **Jing Ming**, J. Shi, "A CNN-based Method for SAR Image Despeckling," *IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium*, Yokohama, Japan, 2019, pp. 4272-4275.

L. Zhou, X. Zhang, J. Shi, S. Wei, **Jing Ming**, *et al.*, "An Autofocus Method for SAR Frequency-Domain Backprojection Imaging," *2019 IEEE Radar Conference (RadarConf)*, Boston, MA, USA, 2019, pp. 1-5.

PATENTS

X. Zhang, X. Zhang, **Jing Ming**, *et al.*, "Adaptive Threshold based Compressed Sensing three-Dimensional SAR Imaging Method." Chinese Patent CN201910271426.3, applied Apr.4 2019

RESEARCH EXPERIENCES

Spaceborne Multi-baseline Interferometric SAR Technology

Sep. 2018 - Present

National Key R&D Program of China

Research Assistant to Prof. Xiaoling Zhang

- Conducted the multi-baseline interferometric processing on TerraSAR-X Image Data with MATLAB, achieved **1m resolution Digital Elevation Model of Barcelona international airport**
- TerraSAR:** Constructed the baseline estimation model of spaceborne SAR satellite constellation to acquire precise unwrapped phase to DEM coefficient, executed successfully on simulated data and TerraSAR orbit data
- TerraSAR:** Applied multibaseline graph-cut phase unwrapping method to obtain high-resolution unwrapped phases from strong discontinuous wrapped phase
- Simulated Spaceborne SAR:** Proposed curved surface based backprojection SAR imaging algorithm to deal with the large scene DEM reconstruction, cutting the BP imaging grid with latitude-longitude coordinates
- Simulated Spaceborne SAR:** Simulated the spaceborne tomographic SAR 3D imaging to recover the third-dimensional height from a group of BP 2D images based on the phase compensation accumulation theory

Circular Array 3D SAR System Simulation and Ground Test Experiment

Aug. 2018 - Jan. 2019

The National Natural Science Foundation of China

Research Assistant to Prof. Xiaoling Zhang

- Proposed a circular array 3D SAR (CASAR) system, achieved **high-resolution 3D SAR imaging** and performed **effective side-lobe suppression capability**
- Derived the Point Spread Function (PSF) of CASAR, compared the simulated PSF under CASAR, LASAR and CSAR, demonstrated the advantages of CASAR constellation in 3D SAR imaging

- Invented the prototype CASAR experimental system, applied step frequency signal as transmit signal and vector network analyzer as signal transceiver, constructed the outfitted experimental scene with 4 metal balls
- Deployed a single antenna to form array antenna by linear movement in the guide rail and constitute circular array by rotating the guide rail

SAR Echo Signal Digital Modeling & Performance Analysis Software

Nov. 2017 - Sep. 2018

Cooperation Projects with Beijing HQ Radar Technologies Co.LTD

Research Assistant to Prof. Xiaoling Zhang

- Accomplished the simulation and verification of spaceborne & airborne SAR echo signal generation and interferometric processing on MATLAB, built a framework of simulation software
- Established the spaceborne SAR targets echo signal digital model with the input satellite orbit model, target scene model, antenna weighted model and phase error model
- Simulated the SAR imaging and interferometric processing with fast GPU-based back-projection SAR imaging algorithm, multiple phase unwrapping algorithms and terrain correction algorithm
- Introduced a performance evaluation function to calculate the PSLR, ISLR and IRW of the generated BP images

Back-projection Imaging Algorithm and Motion Error Compensation

Sep. 2016 - Jun. 2017

Undergraduate Thesis

Supervised by Prof. Xiaoling Zhang

- Designed an autofocus algorithm regarding the image intensity and image contrast to compensate the motion error and realized the high-quality SAR 2D imaging
- Built the echo signal model for side-looking stripmap SAR, applied BP algorithm to realize the 2D SAR imaging, constructed BP based motion error model and conducted the motion error simulation in SAR imaging process
- Published in the paper: An Autofocus Method for SAR Frequency-Domain Backprojection Imaging

RSSI based Positioning System Design

May 2015 - Jun. 2016

UESTC Innovation and Enterprise Program

Supervised by Engr. Bo Chen

- Improved the QDIP algorithm with distance weighted method and reduced the positional error by 20%
- Clarified the positional error sources of RSSI based positioning system, established the quadrilateral diagonal intersection positioning (QDIP) algorithm to increase information in locating
- Presented optimized distance weighted model to automatically select proper anchor nodes

HONORS & AWARDS

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| Academic Scholarship for Graduate Students, Second-class, UESTC | 2019 |
| Academic Scholarship for Graduate Students, Third-class, UESTC | 2018 |
| Freshmen Scholarship for Graduate Students, First-class, UESTC | 2017 |
| Excellent Undergraduate Dissertation (Top 5%), UESTC School of Electronic Engineering | 2017 |
| People's Scholarship for Undergraduate Students, Third-class, UESTC | 2016 |
| Mathematical Contest in Modeling of China, Second Prize of Sichuan (Top 8%), CSIAM | 2015 |
| People's Scholarship for Undergraduate Students, First-class (Top 6%), UESTC | 2015 |
| National English Competition for College Students, Second Prize for band C (Top 3%), MOE of P. R. China | 2014 |
| National Scholarship (Ranking: 2/600) , MOE of P. R. China | 2014 |

SKILLS

Programming

MATLAB, C/C++, VHDL, HTML, L^AT_EX

Software

ENVI, SARscape, Multisim, ModelSim, Quartus II, PROTEL, SketchUp, EndNote

Standardized Tests

TOEFL 100 (Reading: 27, Listening: 28, Speaking 23, Writing: 22)

GRE 314 (Quantitative: 168, Verbal: 146, Analytical Writing: 3.5)