CAREER PROFILE

Radar and Machine Learning Engineer with a MS degree and expertise in SAR/ISAR imaging, algorithm development, and signal processing, leveraging Python and Matlab to drive innovation in the aerospace field.

PROFESSIONAL EXPERIENCE

Senior Radar Engineer
2022 - Present

Terran Orbital Corporation

- Developed automated acceptance testing software for Printed Circuit Board Assemblies including serial control of test equipment and analysis of embedded software telemetry.
- Created containerized Python SAR collection tasking API. Generates radar software commands for the optimal viewing geometry and timing conditions based on the requested target location and satellite ephemeris.
- Implemented SAR image formation algorithms on Amazon Web Services.
- Conducted RF integration testing and performance analysis, including impulse responses, power spectral densities and timing.

RF Engineer Staff
2019 - 2022

Lockheed Martin – Missiles and Fire Control

- Architected scene generation algorithms for a 60-foot free-space radar Hardware-in-the-loop test facility including high fidelity radar phenomenology.
- Designed RF frequency upconversion plan to manage RF scene requirements, latency, FPGA resource utilization and spurious signals.
- Managed architecture, design, and fabrication of multiple digital and RF Circuit Card Assemblies.

Radar Algorithm Engineer
2018 - 2019

L3 Harris – Security and Detection Systems

- Developed and tested MATLAB and C++ algorithms for Ground Penetrating Radar (GPR) on a handheld land mine detection including field and lab data collections.
- Developed MATLAB tools for improved analysis and visualization of GPR hardware and buried object detection algorithm performance.

Lea Johnson

Signal Processing Engineer

Lea.e.Johnson@gmail.com

651-303-9335

lea-johnson-92408423

leaejohnson

EDUCATION

MS in Electrical Engineering

Boston University

2013 - 2015

Part-Time Graduate Courses

Massachusetts Institute of Technology

2012

BS in Electrical Engineering

Michigan Technological University

2005 - 2009

INTERESTS

Cave Diving

Mountain Biking

Rock Climbing

Associate Staff 2009 - 2018

MIT Lincoln Laboratory – Space Division

- Led novel radar satellite imaging algorithm development program for 2+ years. Fused data from existing radars to produce best-in-the-world resolution RF imagery of Geosynchronous satellites.
- Planned and executed data collections for Space Surveillance Network radars including waveform optimization, satellite viewing windows, and operator tracking priorities.
- Optimized ISAR image production software for execution time, parallel processing, memory usage, and improved user experience for creating 3 cm resolution W-Band images of LEO satellites.
- Simulated and analyzed RF signatures of ballistic missiles and Solid-Fuel Rocket debris to assess radar performance and development of radar clutter mitigation algorithms.

CONFERENCES AND PUBLICATIONS

*Note former name: Lea Hansen

- Haystack Ultrawideband Satellite Imaging Radar (HUSIR) Data Processing and Exploitation

L. Hansen, K. Fields, R. Morrison*

Military Sensing Symposia (MSS) Tri-Service Radar Symposium. June 2018.

- Wideband Radar Imaging of Geosynchronous Objects

L. Hansen, R. Morrison*

Military Sensing Symposia (MSS) Tri-Service Radar Symposium. 18-21 July 2017.

- Radar Imaging of Geosynchronous Satellites

*L. Hansen**

MIT Lincoln Laboratory Space Control Conference. May 2017.

- Novel Radar Imaging Capability

Congressional Notification, Feb 7, 2017.

- An Approach to Solid Fuel Debris RF Modeling

D. Koltenuk, L. Johnson, T. Bond

Proceedings of the Missile Defense Sensors, Environments and Algorithms Conference. Oct 2011.

- A Technique for Real-Time Shadowing Adjustment of RCS Scattering Center Models

J. Wilson, B. Rybicki, L. Johnson, D. Koltenuk

IEEE Antennas and Propagation. Oct 2011.