

# JonathanSchuenger

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jpschuenger.me

## Summary

Experienced professional with a strong combination of technical expertise and leadership focused on the development of modeling/simulation software and algorithm solutions for next generation sensor systems.

**Clearance: DoD Top Secret**

## Technical Skills

### Languages

- Proficient in: MATLAB, C/C++, Java, SQL
- Experience with: Perl, HTML, PHP, JavaScript, CSS

### Software

- Database: MySQL
- Tools: MATLAB, Qt, Git, Eclipse IDE, Android SDK

## Experience

### Leidos (2014 – Present)

#### *Senior Signal Processing Engineer*

Principle investigator for a \$10.5M M&S effort responsible for architecting and implementing a robust simulation framework that allows for high fidelity modeling and analysis of next generation sensor systems.

#### *Key Responsibilities:*

- Design flexible simulation infrastructure leveraging C++ and MATLAB that supports rapid prototyping of novel system concepts for a large and diverse user community
- Implement advanced algorithms for current and future sensor systems to assess performance against predicted near, mid and far-term threats
- Leverage simulation environment to analyze large scale engagement scenarios of high priority to the user community
- Frequently interact with a team of engineers to align development progress with cost and schedule timelines
- Brief user community on new simulation capabilities monthly

### Raytheon Company (2011 – 2014)

#### *Senior Systems Analyst*

Technical lead for a \$3.2M customer funded R&D effort responsible for implementing advanced concepts and providing technical direction to facilitate successful execution of program milestones.

#### *Key Achievements:*

- Assessed CONOPS for future airborne engagement scenarios and develop sensor solutions to ensure warfighter survivability
- Modeled and simulated advanced waveform concepts that will support next generation capabilities
- Designed classification algorithms using probabilistic techniques including Bayesian inference and Dempster-Shafer evidential reasoning
- Briefed large customer community monthly on technical performance results

### Raytheon Company (2009 – 2011)

#### *Systems Analyst*

Member of signal exploitation team responsible for radar algorithm development and system level performance modeling for multiple R&D programs that nurture high risk, high reward next generation technologies.

#### *Key Achievements:*

- Effectively collaborated with embedded system developers to mature low level algorithms into a tactical radar mode for a 12 month \$1.5M R&D effort that culminated in a successful real-time flight demonstration

- Developed MySQL database architecture used in conjunction with MATLAB for rapid system performance analysis and algorithm prototyping
- Implemented a real-time radar display and analysis tool using C++ requiring interfacing with algorithms written in multiple languages (C, MATLAB, Fortran, Perl)

## Education

### Miami University (2009)

#### *M.S. Physics*

Research assistant responsible for design and implementation of a software defined radar and communication system based on wideband OFDM waveforms.

#### *Key Achievements:*

- Modeled and simulated OFDM waveforms for SAR imaging using MATLAB
- Built radar analog front end and integrated with transmit/receive side firmware
- Field tested radar/communication system through experimental formation of range and cross-range profiles as well as fully reconstructed SAR Images
- Performed statistical analysis of electronic protection capabilities of randomly generated OFDM waveforms in deceptive and suppressive jamming environments

### Miami University (2007)

#### *B.S. Electrical Engineering*

## Projects

- Developed Java based 2D physics puzzle game deployable on Android mobile phones and tablets leveraging libGDX, OpenGL and Box2D
- Implemented desktop poker analysis game leveraging Qt, a C++ UI application framework

## Publications

- Garmatyuk, D.; Schuerger, J.; Kauffman, k. "Multifunctional Software-Defined Radar Sensor and Data Communication System." IEEE Sensors Journal. Vol. 11, No. 1, pp. 99-106. 2011.
- Schuerger, J. "Ultra-Wideband OFDM Radar and Communication System." Thesis. 2009.
- Schuerger, J.; Garmatyuk, D. "Performance of Random OFDM Radar Signals in Deception Jamming Scenarios." IEEE Radar Conference. 2009.
- Garmatyuk, D.; Schuerger, J.; Kauffman, K.; Spalding, S. "Wideband OFDM System for Radar and Communications." IEEE Radar Conference. 2009.
- Schuerger, J.; Garmatyuk, D. "Deception Jamming Modeling in Radar Sensor Networks." IEEE Military Communications Conference. 2008.

## Awards

- Raytheon "Independent Achievement Award" for stellar performance in sensor system design and analysis (2013 & 2014)
- Raytheon "Excellence in Engineering Technology Award" for RF Automatic Target Recognition (2012)