

# KAREN GROTHE

[http://linkd.in/karen\\_grothe](http://linkd.in/karen_grothe)  
[karen@karengrothe.com](mailto:karen@karengrothe.com)

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## SUMMARY

Leveraging 16 years of experience as a systems engineer in the aerospace industry managing requirements and verification testing for airborne systems into a stellar career advancing spacecraft systems.

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## EDUCATION

[Loyola Marymount University](#) – MS in Systems Engineering 7/2013 to 12/2015

Technical Focus: Electrical Engineering

Key Courses:

Systems Engineering Integrative Project

Topic: [Using the Systems Engineering Process for a Conceptual Mercury CubeSat Mission](#)

[Spacecraft Design](#)

[Project Management](#)

[Systems Architecting](#)

[Lean Methods](#)

[Systems Thinking](#)

Wireless Networks

[Introduction to Communication Systems](#)

[UCLA Extension](#) – Astronautical Engineering Certificate 1/2012 to 3/2015

Key Courses:

[Spacecraft Systems Design and Analysis](#)

[Space Mission Systems Engineering](#)

[Introduction to Satellite Communications](#)

[Washington University in St. Louis](#) - BS in Electrical Engineering 1991 to 1994

[California Institute of Technology](#) 1989 to 1990

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## TECHNICAL SKILLS

Requirements management / specifications / interface control documents

Test procedures / acceptance testing / test reports

Applications: IBM Rational DOORS, STK, Visio, Adobe Acrobat, Word, Excel, PowerPoint

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## EXPERIENCE

[Raytheon – Space and Airborne Systems](#), El Segundo, CA 5/2000 to 6/2011

Senior Systems Engineer I – Radar Systems Engineer

- Ensured the quality of software updates for an [airborne radar system](#) and associated special test equipment through acceptance testing (ATP), leading three ATPs and supporting several others.
- Authored and revised documents: Systems Engineering Management Plan (SEMP), Interface Control Documents (ICDs), requirements specifications, Radar Mode Verification Plans and Procedures, software qualification testing procedures, and acceptance testing procedures.
- Compiled Mission Statistics for the radar from Field Reports, creating Mission Performance Reports.
- Analyzed impacts to performance requirements for three radar modes in the Critical Item Development Specification for a [Radar Modernization Program \(RMP\)](#), including the effect on signal-to-noise ratio (SNR).
- Generated Software Trouble Reports and Software Change Requests for changes implemented in the RMP software release.

- Presented mode performance analysis results at the RMP Systems Requirements Review and the RMP Systems Design Review.
- Evaluated radar data from flight test and labs using FORTRAN tools and modified the analysis tools to evaluate changes in one radar mode. Documented and tested mode analysis software tools following migration onto an upgraded computer.
- Performed analysis for several Software System Trouble Reports (SSTRs) for one radar mode. Generated requirements for solutions to two SSTRs and supported the implementation and testing of the changes recommended.
- Completed Raytheon Six Sigma projects to improve the flight test data request process and to improve the flight test videos library check-in/check-out procedures for the radar program.

[Boeing - Commercial Airplane Group](#), Long Beach, CA

9/1997 to 10/1999

Senior Engineer

- Modified code for the electrical system model in [an aircraft](#) development simulator to allow simulator to be converted into a modified aircraft simulation for development in a [contract for FEDEX](#). Integrated that code into the development simulator.
- Facilitated customer operation of the simulator to do testing and troubleshooting on avionics boxes.

[McDonnell Douglas Aerospace](#), St. Louis, MO

1/1995 to 8/1997

Senior Engineer

- Prototyped an embedded processor model for a cost-reduction demonstration.
- Authored a software requirements specification for vendor's training equipment simulations. Specified [aircraft](#) data for vendor to use in designing training software. Verified aircraft system information for simulation models. Reviewed vendor data and drawings.
- Executed acceptance testing of [Simulated Aircraft Maintenance Trainers](#) at vendor's facility.

## PROFESSIONAL AFFILIATIONS

[International Council on Systems Engineering \(INCOSE\)](#)

- Led the INCOSE Student Division at LMU as President for two years.
- 2015 President's Award for Outstanding Service to the [INCOSE Los Angeles Chapter](#)
- Presentation at 2016 INCOSE Regional Mini-Conference: [Applying the Systems Engineering Process to a Conceptual Mercury CubeSat Mission](#)

[American Institute of Aeronautics and Astronautics \(AIAA\)](#)

- Presentations at 2015 AIAA Orange County (OC) Aerospace Systems and Technology (ASAT) Conference: [Microsatellites](#) and [Space Debris](#)
- Presentations at 2016 AIAA OC ASAT Conference: [Applying the Systems Engineering Process to a Conceptual Mercury CubeSat Mission](#) and [Defending Earth from Asteroids](#)
- Presentation at 2017 AIAA OC ASAT Conference: [What's New with CubeSats?](#)

[Society of Women Engineers \(SWE\)](#)

[Institute of Electrical and Electronic Engineers \(IEEE\)](#)

[Toastmasters](#)

- 2017 Vice President for Education: Leading educational programming for club members, ensuring weekly meetings had functionaries, and orienting new members.
- Delivering prepared and impromptu speeches as well as evaluations of other speakers.
- Completed [Competent Communicator](#) achievement.