

Leslie Haggerty, Consulting Engineer

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H&A Systems Engineering
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Summary of Qualifications

- Developed over 50 Perl programs
- Developed and customized search engine, shopping cart, courseware, and web bulletin board programs
- 28 years of experience; 20 years in private practice
- Expertise in software, algorithms, and systems
- Two ESA algorithm invention disclosures

Employment History

Dates	Position
1994-Present	Consulting Engineer: H&A System Engineering, El Segundo, CA – She leads the Internet consulting portion of the business and has produced web sites and cgi programs that provide interactivity with the user. She has taught structured analysis courses and has participated in requirements and architecture model development for a multiple-unit parallel solid-state power conversion system using Hatley-Pirbhai Methodology (HPM). She has also led the proposal efforts on several software projects.
1993-94	Systems Engineer: Hughes Aircraft Company, El Segundo, CA – She surveyed and recommended methods and tools for computer-aided system/software engineering (CASE). She applied structured methods on radar upgrade.
1993-94	Instructor: Advanced Technical Education Program, Hughes Aircraft Company, El Segundo, CA – She taught structured methods and improved course materials.
1988-93	Member of the Technical Staff II: Hughes Aircraft Company, El Segundo, CA – She tested and verified electronically scanned antenna (ESA). Additionally, she analyzed cost reduction design changes. She also developed architecture models for proposed EW system configurations; analyzed trade-offs.
1986-88	Member of the Technical Staff I: Hughes Aircraft Company, El Segundo, CA – She designed, analyzed, simulated, tested, and verified the ESA subsystem.

Education

Degree

- B.S., University of Redlands, Redlands, CA, 1986
 Major: Engineering with electrical emphasis
 Minor: Mathematics.

Academic Research

- L. J. Haggerty (nee Abernethy), K. Chang, P. Cocoran, T. Doyle, and R. Smith, "Hybrid Electric Vehicle with an Aluminum Chassis," Senior Design Project: University of Redlands, Redlands, CA, 1986.
- L. J. Haggerty (nee Abernethy), "An Automated Data Acquisition and Control System for Pulsed Laser Experiments," Honors Research Project: University of Redlands, Redlands, CA, 1985.

Honors Received

- Graduated Summa Cum Laude and with High Honors in Engineering and Computer Science
- National Honor Societies: Phi Beta Kappa, Mortar Board, Omicron Delta Kappa

Continuing Education

- Self-taught: Perl, Java, Javascript, and HTML 1996-2001
- *Fundamentals and Applications of Object-Oriented Programming Using C++*, UCLA Extension 1996
- *Programming in C*, El Camino College, 1996
- *Case Studies in System Development*, Instructor: Derek J. Hatley, 1994
- Hughes Aircraft Co. SEAT Program, 1993 (3-year system engineering rotation/training program)
- *A Migration Path from Structured to Object-Oriented Development*, Instructor: Paul T. Ward, 1993
- *Structured System Development*, Instructor: Imtiaz A. Pirbhai, 1992
- *Structured System Requirements and Architecture*, Hughes Advanced Technical Education Prog., 1991

Professional Activities and Honors

California Professional Engineering License

- Electrical Engineer

Hughes Patent Invention Disclosure Awards

- L. J. Haggerty (nee Abernethy), T. M. Leckenby, R. G. Moore, C. E. Seamount, E. A. Tobias, "Phase Error Minimization Algorithms for Real-Time Error Compensation of a Phased Array Antenna," Hughes Aircraft Co., 1993.
- L. J. Haggerty (nee Abernethy), "Algorithms for Correlating Phase Shifter Failures to Antenna Performance," Hughes Aircraft Co., 1991.

Publication

- L. J. Haggerty and J. A. Rader, "Supporting Systems Engineering with Methods and Tools: A Case Study," presented at the *28th Asilomar Conf. Signals, Systems, Computers*, pp. 1330-1334, Asilomar Conf. Ctr., Pacific Grove, CA, Oct. 31-Nov. 2, 1994.

Hughes Awards

- Group Achievement Award, Advancement of Hughes in Tactical Airborne EW (1992)

- Superior Performance Award (1992)
- Group Achievement Award, B-2 Antenna -140 Upgrade (1992)
- Superior Performance Award (1990)
- Superior Team Award, Molded Waveguide Components, Antenna Cost Reduction (1990)
- Approved Cost Savings: \$230,000 (1990-92)

IEEE Awards and Honors

- Millennium Medal (2000)

Community and Professional Service

- AHG volunteering: Troop Coordinator, Regional Camp Director (2008-2014)
- IEEE Coastal Los Angeles Section Professional Activities Chair (1999)
- Alliance of IEEE Consultants' Networks (AICN) Web Directory Technical Support (1998-2013)
- LAACN Web Directory Technical Support (1996-2001)
- Webmaster, Stand to Reason www.str.org (1997 – 2001)

Summary of Professional Experience

Custom Internet Software Development

- Developed custom web software to increase site interactivity for numerous clients. Software includes: shopping carts, secure credit card payment systems, online courseware, search engines, bulletin boards, random message generators, daily commentary display, submission systems, survey and comment collection, and login systems.
- Managed all aspects of educational organization web site including site organization and navigation, content formatting in HTML, interactivity improvements through scripts, and new feature development – including the development and deployment of online courseware.
- Automated web content formatting using FileMaker Pro databases.
- Developed log analysis programs.
- Developed initial web site for two online catalogs including site organization, graphics conversion, and shopping cart scripts.
- Set up online consultants directory for IEEE including search engine, listing submission system, prior offline database management for directory administrators, new online administration system, automated renewal

invoicing, banner ad system, consultant finder search tool, and consultant assignment posting system.

- Designed and implemented several upgrades to the IEEE online consultants directory.

CASE Methods and Tools

- Developed Hatley-Pirbhai Methodology (HPM) requirements and architecture models for a multiple-unit parallel solid-state power conversion system.
- Provided requirements models and other technical support to 5 SBIR proposals and to the integrated database proposal to CSUF.
- Specified system requirements for radar upgrade and applied HPM to radar system.
- Applied HPM to specify requirements, develop architecture, and perform hardware system engineering for EW subsystem configurations.
- Applied HPM to capture the hardware detection and the user interface requirements as well as the hardware architecture for an EW receiver.
- Surveyed systems engineering tools in use at Hughes, compiled a tool information data base, and produced a directory of commercial off-the-shelf tools.

- Recommended tools and computers for CASE infrastructure. Developed and executed CASE implementation plan for radar upgrade program.

Teaching and Public Speaking

- Taught HPM course 5 times and revised the instructional materials. HPM is a set of structured methods for specifying system, software and hardware requirements.
- Taught the structured analysis part of HPM to two classes.
- Gave a tutorial on HTML at IEEE meetings.
- Led workshop sessions at IEEE networking and professional engineering licensing workshops.

RF Sensors

- Analyzed EW receiver performance, gain distribution, noise figure, scheduling algorithm, and response times. Performed trade-off study of EW configurations.
- Analyzed radar detection and false alarm rate; verified performance with flight test data.

- Allocated system requirements to ESA parameters and made system engineering level design change decisions for production.
- Developed ESA simulation to predict the impact of failures and manufacturing variations on performance.
- Led sidelobe performance investigation; developed real-time error compensation algorithm and techniques for calibration and compensation of phase shifters.

Integration and Test

- Developed automated flight test data reduction software and evaluated flight test data to determine radar mode performance.
- Planned antenna test range tests; developed method and software to automate antenna testing; and resolved test range problems.
- Analyzed reliability of antenna power supplies

Technical Leadership

- Led proposal team on original and revised small business innovation research (SBIR) proposal for a virtual science lab software project.