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## EXPERIENCE

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### **Orolia/McMurdo – SARSAT Division**

*Principle Engineer (2014 - 2019)*

Responsible for the systems engineering, production, installation, training, and customer relations for 10 Medium Earth Orbit Search and Rescue (MEOSAR) ground stations. Wore a few hats:

- Production Engineering and Management – Developed and documented Window Server O/S, MS-SQL Server, and in-house software installations on the factory floor for 22+ servers required for each installation. Advanced the configuration automation environment with PXE network installs, Powershell, and test-beds using VSphere elements. Subject matter expert directing engineering technicians and contractors to integrate Cisco and associated networking hardware, electrical systems, and radio-signal trains for DSP processing.
- Installation Manager – Company representative guiding field contractors and engaging customers for civil works, antenna construction, delivered equipment stand-ups, and electrical integration in 8 countries. Coordinated and demonstrated full systems operations to acceptance. Resolved massive amounts of technical and bureaucratic IP networking issues.
- Satellite Systems Optimization – A typical installation has 6 antenna channels. Each requires trouble-shooting install issues, and optimizing the scheduling, aiming, and signal integrity of these inputs. Examples: Software Defined Radios chained with wonky downconverters; suspect PPS not syncing DSP oscillators; antenna control units spontaneously rebooting.
- Training and Support – Pre- and post-installation classes conducted in operation, administration, and maintenance of systems. Engaged in continual remote and on-site warranty service, calibration, and data-integrity studies. Prepared summary reports to the larger SAR community.
- Miscellaneous Software Integrator – Splunk deployed; PRTG configured; APC/Tripplite firmware scripted with *Expect*.

### **Freelance development and communication systems consulting (2012 - 2014)**

- Project to implement real-time GUI controls in a web-browser for local and remote I/O. Prototype work results in an SVG controller framework which routes data via Node.js and controls an ROS robot simulation. ([dagent.github.com/rosNodeJoystick](https://dagent.github.com/rosNodeJoystick))
- Prototype hand-held web-based controller for kinetic sculpture installation. Back-end services using Node.js controlling an Arduino. ([youtu.be/420qqEEXWzI](https://youtu.be/420qqEEXWzI))
- Created HF-radio geolocation platforms to track maritime assets in northern Africa. Wrote GIS integration software and radio controllers in Perl and C++. Created a home-grown embedded Linux platform to ingest and disseminate data. Trained customers and advanced further proposal efforts.
- Maritime command center and remote sensor (radar/AIS/camera) production and installation at 10 sites in northern Africa. Bespoke RHEL & Cisco deployments for Techno-Sciences.

### **Techno-Sciences, Inc. – Trident Maritime Systems Division**

*Managing Developer for Computers and Communications Networks (2007 - 2011)*

Managed and worked along side a talented team taking my prototypes to production, installing them on 13 ships, in 29 remote coastal stations and in 5 command centers in Indonesia and Malaysia to assist SPAWAR and local governments in monitoring vessel traffic to detect piracy, natural resource theft, and terrorist activity.

- Implemented an HF radio system to transfer ship sensor data, and to act as a backup for coastal station VSAT communications with centralized command centers. Developed software to control HF radio physical layer linking and the over-the-air data link layer for remote sensors and camera control. Point-to-point links of 1000 miles currently exchange vessel data.
- Designed a hardened, semi-embedded, secure Linux platform for to ingest data from multiple maritime sensors. Originated manufacturing, testing, and acceptance procedures.
- Oversaw the successful completion of the Trident iDEX, an embedded server system for exporting live maritime surveillance data in an open format to third-party systems. Developed initial XML schema critical to securing follow-on contracts.
- Integrated the lens, CCD, and pan/tilt control, with video server capture system and web-based display for the Trident Camera System using C/C++ and a LAMP stack.
- Managed groups of developers, mentored engineers, and remotely assisted field technicians across multiple time-zones.
- Supervised the development of the Trident Data Logger embedded server platform for monitoring the status of solar based, grid-free power systems.
- Frequently traveled to Indonesia and Malaysia for in-field debugging, hardware installations, and managing verification tests for customers. Supervised teams while configuring and deploying servers, workstations, radars, advanced camera systems, HF/VHF radios, AIS base-stations, and Cisco routers on factory floors and at remote monitoring sites, command centers, and microwave back-haul nodes.

**Techno-Sciences, Inc. – *Systems and Controls Division***

*Senior & Principal Engineer (2001 - 2006)*

- Implemented image compression and data transmission solutions for low bandwidth situations on Special Forces Operations Combatant Craft, and demonstrated an integrated Linux and Windows hardware solution. This system and related proposal work produced \$75M in contract awards.
- Project manager and lead engineer for a Bridge Communications System for a SOCOM prototype development effort for supplying ship health and navigational data, targeting exchange, and data communication for rapid deployment boats. Produced a customized, embedded version of Linux, and programmed tight C code which gathered and exchanged data over HF communication networks. Investigated image compression and real-time data processing methods to maximize data transmission during low bandwidth situations.
- Managed and developed the system software and hardware integration for a voyage data recorder (VDR), resulting in a hardened audio-video-data recording unit for ocean-going cargo vessels.
- Coded DSP software for a real-time Linux environment to detect compressor stall and irregular blade vibrations using eddy-current-sensors in jet engines for the Joint Strike Fighter.
- Developed a hand-held Windows CE interface tool for maintenance and SCADA needs at the U.S. Mint. Production software elements included custom developed MS Visual tools, and administration of InSQL, Oracle, MS SQL Server, IIS, and Wonderware products.

**Raytheon & Hughes at Goddard Space Flight Center – *Systems and Controls Division***  
*Senior Programmer/Analyst (1998-2000)*

Systems administration/programming and scientific analysis for the Atmospheric Chemistry and Dynamics Branch (at GSFC. Duties included:

- Hardware, software, operating system maintenance, and systems programming for dozens of SGI IRIX workstations and servers.
- Developed and maintained a web-based data dissemination platform for climatological fields modeled in-house
- Located data and automated data transformations, and archived a periodic collection of meteorological data from a variety of scientific sources, while ensuring the integrity of our data analysis.
- Supported field campaigns with meteorological forecast products (<http://cloud1.arc.nasa.gov/solve/>) to validate satellite acquired data.
- Lead assessment and drafted plans to increase enterprise storage reliability for raw and derived atmospheric data sets.

**University of Maryland – *Institute for Physical Science and Technology***

*Faculty Researcher and Graduate Studies (1992-1998)*

Science team member for the USMP-2 & 3 microgravity payloads on the Space Shuttle Columbia missions STS-62 & 75.

- Designed, machined, prototyped, and manufactured scientific mission hardware.
- Developed real-time data analysis and control software on Unix and OS/9 platforms.
- Contamination control procedures implemented, novel cleaning methods developed.
- Pioneered interface of Ethernet and RS-232 LAN workstations with NASA telemetry networks to control orbiting experimental apparatus.
- Pre- and post-flight data analysis and experiment calibration.

## SKILLS

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- General computer operating system administration, programming, and hardware; Advanced Linux systems manipulation (Bash, Perl, C, Python, awk, MySQL, sqlite, PostgreSQL, socat); GIS and mapping methods using XML, HTML, KML, protobuf; web development with SVG, JavaScript, and Node.js; data manipulation and visualization with MATLAB/IDL/R; MS Windows Server and PowerShell; MacOS enjoyed; IOS endured.
- HF ALE radio systems (especially Micom and Harris); NMEA and AIS standards; RS232/422/485 interface specialist; maritime radars; TCP/IP hijinks; satellite antennas and signal trains; comfortable with oscilloscope, spectrum analyzer, soldering gun, and hammers.
- Sensor system knowledge includes thermistors; laser detectors; high-end lens, CCD, and gimble control; radar and sonar.
- Past work included machine shops; scientific vacuum systems; clean-room construction; high-pressure systems.

## EDUCATION

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University of Maryland, College Park

1999 MS Chemical Physics *Experimental Statistical Mechanics*

## MISCELLANEA

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- Professional Organizations: IEEE, AFCEA, BI-CERT
- Languages: Fluent English, novice Indonesian, schooled German
- Security Clearance: Secret (2007-2012)
- Interests: Playing music, Hiking, Pinball

## PUBLICATIONS

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- R. W. Gammon, J. N. Shaumeyer, M. E. Briggs, H. Boukari D. A. Gent, and R. A. Wilkinson. “Highlights of Zeno Results from the USMP-2 Mission”. In *Second United States Microgravity Payload: One Year Report*, NASA Technical Memorandum 4737, pages 5–135:5–163. NASA, Marshall Space Flight Center, 1996.
- R. W. Gammon, J. N. Shaumeyer, M. E. Briggs, H. Boukari D. A. Gent, and R. A. Wilkinson. “Zeno: Critical Fluid Light Scattering Experiment”. In *Third Microgravity Fluid Physics Conference*, NASA Conference Publication 3338, pages 67–69. NASA, 1996.
- R. W. Gammon, J. N. Shaumeyer, M. E. Briggs, H. Boukari and D. A. Gent. “Zeno: Critical Fluid Light Scattering in Microgravity”. In E. R. Pike and J. B. Abbiss, editors, *Light Scattering and Photon Correlation Spectroscopy*, NATO ASI Series 3, v40, pages 389–400. Kluwer Academic Publishers, Netherlands, 1997.
- R. W. Gammon, J. N. Shaumeyer, M. E. Briggs, H. Boukari D. A. Gent, and R. A. Wilkinson. “Zeno: A Second Flight on USMP-3”. In *Proceedings of the 1997 NASA/JPL Microgravity Fundamental Physics Workshop*, NASA Document D-15677, pages 137–148. JPL, Pasadena CA, 1998.
- C. Teolis, D. Gent, C. Kim, A. Teolis, J. Paduano, and M. Bright. “Eddy Current Sensor Signal Processing for Stall Detection”. In *Excursions in Harmonic Analysis, Volume 1*, ISBN 978-0-8176-8375-7, pages 433–460. Birkhuser, Boston, 2013