# Richard P. Dillon

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## Experience

### Senior Software Engineer, Lockheed Martin Advanced Technologies, 2004–Present

#### Internal R&D Prototyping For Genomic Data Management and Processing

Technical lead for bioinformatics IR&D working closely with UCSF and NIH scientists to develop cloud-based data compression and management platform. Development ongoing.

#### Distributed Database Prototyping

Developed a distributed track information database prototype for the Office of Naval Research. Prototype based on Apache Cassandra to create global shared information space for U.S. Navy use. Demonstrated on unreliable network and visualized with NASA Worldwind.

#### Augmented Reality Prototyping for DARPA ULTRA-Vis

Developer on a team that prototyped a wearable, networked augmented reality system to enhance situational awareness for dismounted warfighters. Developed sensor alignment algorithms and integrated hardware and software components from five partners; successfully demonstrated in the field to DARPA personnel in January 2010.

#### Unattended Wireless Sensor Network Data Routing

Co-architected and developed distributed demand-based data routing algorithms based on learning classifier systems. Successfully demonstrated 1000 nodes in unreliable network environment using simulation; demonstrated real-world application by porting and deploying to ten SunSPOTs. Co-authored paper and presented work at WorldComp ICWN 2008.

#### Genetic Algorithm Optimization and Supply Chain Simulation

Lead developer on R&D project to optimize global reverse supply chain logistics involving placement of facilities to collect GPS tracking units (tags) after use by customers. Developed global tag routing simulation in Scala to calculate tag collection cost. Integrated Javaspaces-based distributed computing platform with genetic algorithms framework to perform search for optimal collection center placement on eight-node cluster. Cited by program manager as most successful of his R&D efforts in 2008.

#### Cluster-based Network Simulation

Co-developed cluster-based simulation environment to demonstrate scalability of distributed architecture for sensor data fusion. Integrated simulation code with replicated worker Javaspaces-based distribution framework to simulate 1300-node scenario using eight-node cluster. Presented network simulation techniques at 2005 Jini Community Conference, Chicago, IL.

**Division Officer, USS Boxer (LHD-4), United States Navy, 2001-2004**

Led a division of 60 sailors responsible for shipwide damage control. Awarded two Navy Achievement Medals and cited as Commanding Officer's most trusted Officer of the Deck during three deployments to Arabian Gulf; responsible for conducting amphibious and helicopter operations in hostile waters off the coast of Iraq and Kuwait.

## Awards, Articles and Presentations

- Presenter at 2011 Lockheed Martin Agile Software Engineering Workshop in Bethesda, MD
- Nominated for the Lockheed Martin Executive Technical Roundtable Mentoring Program (2011)
- Lockheed Martin Individual Special Recognition Award for work as project lead to optimize shipping logistics using genetic algorithms (2009)
- Lockheed Martin Spot Award for research on wireless data routing algorithms (2008)
- Presented paper at at WorldComp ICWN 2008: *A Self-Organizing System for Regulating Data Flow through Highly Bandwidth-Constrained Wireless Sensor Networks*
- Speaker at JavaOne 2007 on the *Open-Source Java Projects: Meet the Sausage Makers Panel*
- Lockheed Martin Spot Award for integrating data fusion engine and distributed fusion management framework (2006)
- Speaker at 2005 Jini Community Meeting: *Using JavaSpaces to Simulate Large-Scale Jini Service Networks*
- Lockheed Martin Team Special Recognition Award for prototyping of distributed network resource allocation framework (2005)

## Education

- *Master of Computer Science* (GPA: 3.97), 2010 (North Carolina State University Raleigh, NC)
- *Bachelor of Science, Operations Research*, 2000 (Cornell University Ithaca, NY)

## Technical Proficiencies

**10000+ Hours:** Object-oriented programming, Distributed computing, Java, LPI-certified GNU/Linux systems administrator, GNU Emacs, Agile development (scrum)

**5000+ Hours:** Python, Public presentation, Concurrent systems, Simulation, Mac OS X, Jini 2/Apache River, Eclipse

**1000+ Hours:** Functional programming, Scala, Clojure, Javascript, Genetic algorithms, Distributed data structures, J2EE (JBoss/Glassfish), Rocks Clusters, LaTeX