# Michael I Schwartz

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## SUMMARY

Extensive hands-on experience in systems and software engineering with emphasis on development methods and tools, incorporating new technology, and mathematical techniques. Technical excellence in multi-language development, software concepts, design, and development.

Succeeded in both mission critical applications with severe time constraints and research and development projects with technology insertion goals.

Mentored technical contributors, especially advanced developers and architects, to make their own contributions to these applications, and future applications.

Focus on team building, mentoring, technology insertion, and new business opportunities.

## CAPABILITIES AND ACHIEVEMENTS

Led system design, software design, and implementation teams in completing multiple successful projects. Succeeded in both mission critical applications with severe time constraints and research and development projects with technology insertion goals. Mentored technical contributors, especially advanced developers and architects, to make their own contributions to these applications, and future applications.

In-house expert consultant, mentor, and implementer for UNIX/Linux, C, C++, scripting languages, cloud and big data solutions.

Designed and implemented software products and interfaces, and integrated hardware and software.

Experience ranges from systems and software concepts, to architecture, to detailed design, and to device driver implementation.

Designed and implemented technology transfer courses and products for Lockheed Martin projects, including applying object-oriented techniques, systems and software engineering techniques, and cloud computing.

Designed and taught graduate level courses in computing-related topics for the University of Denver.

## EMPLOYMENT OVERVIEW

### Lockheed Martin

PO Box 179, Denver Colorado 80201

*1981 — Present*

**Overview**

In addition to the specific positions mentioned below, my Lockheed Martin career has been marked by a focus on innovation in integrating new technologies, as a chief scientist and a system and software architect. I have been a frequent participant in design adequacy assessments, and many other broad corporate initiatives that require someone who can communicate well, and is not afraid to take risks, overcome obstacles, and work across organizational boundaries and through organizational challenges. My work history has shown the results of a commitment to creating a technical path for career advancement and enabling it for others.

**Lockheed Martin Fellow** *(2008-2014)*
Provide technical leadership to wide variety of new business pursuits, as well as mentoring and technical support to continuing projects. Areas of focus include operating systems, multi-language and multi-vendor implementations, technology roadmaps, evolutionary roadmaps, innovation, and information management strategies, including cloud computing and information assurance.
Ongoing role in the Information Systems Architecture (ISA) program which is used to qualify, mentor, and credential our senior systems and software architects and technical leads.
Special assignment to apply Hadoop and other big data technologies to improving integration, verification, and test environment for the NASA Orion Crew Vehicle development.
Special assignment to provide technical support, cloud computing strategy, and mentoring for Geoscout-related new business opportunities. Led an R&D project on cloud computing from infrastructure provider as well as application provider perspectives  to guide business approach with a Government customer.
Special assignment to provide technical leadership, mentoring, grow technical talent, and establish esprit-de-corps for the data storage integrated product team on Integrated Mission Management (iMM). Also provided consulting support to infrastructure and user interface product teams.
Recent proposal support includes RTM 3.2 (2012), ROMO (2011), JDISS (2011); reviews include DAAs, Gold Teams, Red Teams, Pink Teams, Tiger Teams on C2AD (2012), iMM (2009-2012), SBIRS (2011), Space Fence (2011), JMS/HAC (2010), GOES-R (2011), SSC Orion EFT-1 (2011-2013). Technical assistance to DCGS-A (2011 & 2012), NES (2012), iMM (2006-Chief Architect, 2009-2012-Technical Leadership), JETSS (2008), SASSA (2008).

**Space Radar Chief Software, Ground, and User Architect** *(2003 – 2008)*
Provide technical direction and technology development to the ground-based architecture, as well as both space and ground-based software architecture. Responsible for standards selection and development, establishing interaction with customer's developing software architecture, establishing a single program Software Development Plan for all subcontractors, with both customer and engineering approvals.

**Senior Manager** *(1997-1999, 2002-2008)*
Provide leadership, career and development opportunities, assessments, salary planning, rewards and recognition, and mentoring to department of 12-35 senior contributors and architects across the country. Managed incoming list of over 100 architecture candidates recruited from the Central Zone to vet for the IS&GS Information System Architecture program, and mentored and/or found mentors for almost all of the candidates. Conducted and arranged for many candidate interviews, and was a member of the IISA steering committee. As manager, staffed the architecture component of the ACS contract with qualified candidates, mentored and supported the staff during the rough startup period, and found assignments for those destaffed when the program was terminated for convenience.

**Senior Staff Engineer** *(1991-1997)*
Technical lead and chief system engineer for tasking, processing, exploitation, and dissemination (TPED) independent Research & Development activity. Project focus is application of modern technologies (component-based design and implementation, collaborative infrastructure) and implementation techniques (Java, CORBA, DOM, XML) to real-time and off-line producers and consumers of large volumes of data and metadata.
Led System Architecture group for All Source Analysis System program. ASAS moved from C & FORTRAN, VAX/VMS, and text menus to C, Ada, C++, Tcl/Tk & other languages, POSIX/UNIX, and X/MOTIF. Client-server approaches were used for both database (Oracle) and other processing

(OSF DCE); web technology inserted to promote distribution of intelligence products. Recognized by both management and customer as a long-term major contributor to the success of this program. Work led to several additional multi-year contracts with Canadian government and DARPA. Led team to achieve DoD's first Common Operational Environment (COE) Mission Application at Level 6, and first Army program certified compliant with COE.

Provided major portions of system and software architecture and implementation strategy for All Source Analysis System for the Army. Responsible for technical sections in the proposal, with contributions recognized as a substantial factor in winning the contract.

Designed, created, and presented courses in object oriented analysis, design, and C++ implementation; led Tcl/Tk seminars; guided system administration, technology transfer, and software process work. Methods developed became part of the standard Lockheed Martin Astronautics process.

**Senior Software Engineer** *(1981-1985)***, Group Staff Engineer** *(1985-1991)*

Led a database team responsible for supporting real-time testing of tactical data systems. Coordinated schema, sizing, and efficiency issues in interfaces to Ada code. Researched and provided design for implementing tactical data communications protocol support.

Provided technical direction for company-wide implementation of email and news systems.

Led a software team in designing, implementing, and integrating a network for a real-time dataconferencing system. Completed product on time and under budget. Technical advantages of the solution, which allowed shift change briefings with crews on-station, grew from a $250K demonstration system to a multi-year contract worth over $10M. This success led our same group to grow and successfully compete for Granite Sentry and eventually ISC2, orders of magnitude larger..

Performed mathematical Research & Development for a database project, including modeling techniques, technology evaluation, optical disk storage strategies, and graphics DBMS strategies. Developed unique, effective mapping algorithms for storing, retrieving, and processing maps for a graphical database, under severe computational restrictions.

**University of Denver**
2211 S. Josephine, Denver, Colorado, 80208
*1988—Present*

**University College Instructor** *(1988-2013)*
Taught Distributed Computing, Java, XML Applications, Database, C++, C, OOA/OOD, UNIX courses. Highly rated by students.
Also, Software Engineering II for the University of Denver Computer Science Department Masters Program. Guest lecturer on the origins and development of cloud computing, and likely future trends.

## EDUCATION

**University of Colorado**, Boulder, Colorado
1983-1984  Postgraduate studies
**Michigan State University**, East Lansing, Michigan
1978-1981 Received M.S. Mathematics in May 1980
**Case Western Reserve University,** Cleveland, Ohio
1972-1978 Received B.S. Mathematics in June, 1976

## ORGANIZATIONS

USENIX, since 1981

## OTHER FACTS

**OPERATING SYSTEMS:**
Proficiency Expert: UNIX (BSD, SysV, Posix), Windows.

**SOFTWARE LANGUAGES:**
Proficiency Expert: C, C++. Released several popular Tcl/Tk extensions.

**AWARDS:**
- Lockheed Martin Fellow, 2008-2011, 2nd 3-year term beginning 2012.
- Three patent application awards, 2002-2003; Patents 7,165,060, 7,437,408, 7,809,791
- Management and Data Systems Information System Architect certification, 2001; Information Systems and Global Services Information Systems Architect renewal as advanced architect, 2012
- Inventor of the Year Award, 2001
- Intellectual Property Special Award, 2000
- Employee Commendation, 1985, 1987, 1993, 1994, 1997, 1998, 2003, 2004, 2007
- Promotions, 1985, 1988, 1991, 1997
- Peer Awards (Mentoring in OOA, OOD), 1993, 2001, 2003
- US Army Commendation, 1998
- Project Special Incentive Awards, 1993, 1994, 2004, 2008
- Corporate Technical Achievement Award, 1995, 1997

**PUBLICATIONS:**

Building a Build Plan (2012, with Dolores Gallus), Cloud Computing Overview (2012), User Stories and Abuser Stories For Nonfunctional Requirements (2009, with Dottie Acton), Tsunami Software Infrastructure (2000, with Kurt Heddleston), Use of Enabling Techniques Leveraging COTS To Provide Rapid Insertion and Migratory Integration in the All Source Analysis System (1997, with LTC Mike Hainline), Ada Implementation of Operating System Dependent Features (1986, with Randall Hay), plus over 100 published internal technical memoranda.