# Alexander Roth

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## IT & Information Systems Manager

- Software engineer with over 10 years of experience with focus on laboratory automation, application integration, automated software testing and IT security aspects across diverse industries and international environments.
- Expert in requirements analysis, conceptual design of software and test strategies. Proven ability to drive projects and assure quality standards of products.
- Experienced leader of software development teams implementing interdisciplinary software projects in the United States and Germany.

## Skills

- Software Engineering
- Project Management
- Laboratory Automation
- Instrument Integration
- Application Integration
- Workflow Optimization

- Laboratory Regulations
- OO Analysis and Design
- Automated Integrated Test
- Security Analysis
- Data Integration
- SharePoint Server

## Professional Experience

**UCLA, Global Bio Lab, Los Angeles, CA, U.S.A.** – *Fully automated high-throughput laboratory for infectious disease*

**IT & Information Systems Manager,** 2/2008 to Present

Tasks: Establish and supervise a team of 5 software developers and contractors to implement information and IT systems required to operate high-throughput laboratory in fully automated manner. Design and implement a secure and failsafe laboratory network infrastructure for distributed locations. Design technical requirements specifications for automated laboratory systems as a part of an interdisciplinary team with members from UCLA and Los Alamos National Lab (LANL). Establish and maintain software and hardware infrastructure for laboratory personnel. Assess software and hardware needs of the laboratory; prepare IT purchase planning and budget justifications. Present project results to Principal Investigators, sponsors and the scientific community.

Achievements:
- Created a specification of a software control interface for integration of automated laboratory systems with a Laboratory Information Management System (LIMS). Led in-house projects and worked with systems manufacturers on the implementation of required software components and monitored project progress.
- Developed IT specifications for the Extraction/Screening System and Culturing System with LIMS as well as supported the specification development team during the entire design process. Evaluated technical concepts for the Extraction/Screening System and Culturing System during a public bidding process.
- Analyzed and specified laboratory workflows for sample processing. Collaborated with a LIMS vendor to design a system specification for implementation of these workflows.
- Specified, tested and deployed software for handheld data acquisition devises for collection of H1N1 blood samples. Integrated wireless barcode readers for sample identification. Provided study team with technical support and data management services.
- Developed a test plan for testing of functional requirements of a -80°C sample storage system. Performed factory and site acceptance tests, coordinated and supported delivery of the system.
- Studied Federal Regulations for Possession, Use, and Transfer of Select Agents and Toxins in order to determine the resulting requirements in the following areas: security of the laboratory network, security of server systems, security of personal computer systems, procedures for longtime storage of samples, chain of custody while sample processing.

- Created and implemented a laboratory network security concept that specifies security measures such as firewalls, encryption, remote access and operation procedures to ensure secure operation of the laboratory and security of data.
- Specified, evaluated and implemented information systems to support and improve operations of laboratory personnel such as the email system, project collaboration system, file versioning system, SharePoint Server etc.
- Prepared job descriptions, conducted job interviews and hired IT personnel.
- Attended conferences and trade shows to conduct product and technology research as well as to present project results to the scientific community.

**sd&m AG (Capgemini), Frankfurt, Germany** – *Software engineering and consulting*
**Software Engineer,** 8/2007 to 1/2008
- Created a manual for configuration management that specifies procedures for issue management, bug tracking, release management, software deployment etc.
- Specified strategy for integrated test and specified test criteria for testing of a web application with a large number of users. Implemented tests and performed tests utilizing tools for automated testing.

**National Institute of Standards and Technology, Gaithersburg, MD, U.S.A.** – *Biochemical Science Division*
**Guest Researcher,** 9/2005 to 8/2006
- Created a specification "Naming and Design Rules (NDR) for design and development of XML Schemas within an Analytical Information Markup Language (AnIML)".
- Developed a specification "Naming and Design Rules (NDR) for creation of AnIML technique documents".

**ACSS GmbH, Niedernhausen/Ts, Germany** – *Actuarial consulting company*
**Software Developer (part-time),** 03/2003 – 08/2005 and 08/2006 – 01/2007
- Designed and developed desktop applications for processing and reporting of business core numbers and balances. Programming language – VisualBasic.NET, DBMS – Access, IDE – VisualStudio 2003; OS - Windows.
- Designed and implemented a software system for planning and controlling of construction projects in the railroad industry. Programming language – C#, DBMS – MS SQL-Server, IDE – VisualStudio; OS - Windows.

**Asklepios, Wiesbaden, Germany** – Hospitals, *Central IT Services*
**Application developer,** 01/2002 - 09/2002
- Specified and implemented content-oriented and technical requirements of the Internet and Intranet sites of a hospital chain. User support, Helpdesk and server administration. (PanSite, Windows 2000, MS SQL-Server 2000, HTML, JavaScript, Perl, ASP, Java, XML, CSS).
- Designed and developed an Internet software system for the creation and handling of surveys under consideration of the following requirements: authentication, result coding, session management, versioning etc. Programming language - Java, DBMS – MS SQL-Server, IDE – JBuilder, OS – Windows 2000. Others: HTTP, SSL/TLS, POP3, HTML, CSS.

**CMG Industrie GmbH, Eschborn, Germany** – *Software consulting company*
**Consultant,** 09/2000 - 12/2001
- Designed and implemented Java-based software systems for various clients. The software systems included, but were not limited to the following:
  - Application integration solution for data exchange in IATA format between airline ticket management systems
  - Data import component for legacy data as part of a management system for touristic season planning
  - Generic software framework for importing and processing of data files as part of an application integration system
- Attended training at Sun Systems. Topics of training included the following: OO-Analysis and Design, UML. Java: basic structures, frontends, distributed systems, database connection, server processes, etc.

**die software GmbH, Bad Schwalbach, Germany** – *Software consulting*
**Trainee,** 09/1997 - 06/2000
- Designed and implemented various software systems for clients in forest management and slot machine manufacturing. All software was developed utilizing RPG400 for IBM AS/400. Software systems  included but were not limited to the following:
  - Invoice administration system for a forest management company
  - Automated data exchange between software systems of sales branches and headquarters of a slot machines manufacturer
  - System for invoicing of monthly license fees with automated data exchange with accounting and other software systems.
  - Projects focused on the Year 2000 compliance and conversion to the EURO currency.

## Education

**Rhein-Main University of Applied Sciences, Wiesbaden, Germany**
**Diploma,** 7/2007
- Major: Computer Science
- Topic of the thesis: "AnIML and LECIS OMG Laboratory Standards Supporting Documentation and Generic Instrument Control".

## Presentations & Articles

**LabAutomation Conference in Palm Springs, CA, U.S.A** – *Association for Laboratory Automation*
**Poster presentation,** 01/2009
- Title: "Processing of mass surveillance and sample information at a high-throughput laboratory".

**LabAutomation Conference in Palm Springs, CA, U.S.A** – *Association for Laboratory Automation*
**Poster presentation,** 01/2007
- Title: "AnIML and LECIS OMG – Laboratory Standards Supporting Documentation and Generic Instrument Control".

**Journal of the Association for Laboratory Automation (JALA)** – *Association for Laboratory Automation*
**Article,** 08/2006
- Title: "Automated Generation of AnIML Documents by Analytical Instruments" (Volume 11, Issue 4, Pages 247-253).

**ACS National Meeting, Atlanta, GA, U.S.A** – *American Chemistry Society*
**Podium presentation,** 04/2006
- Title: "Ensuring the Interoperability of the Analytical Information Markup Language (AnIML)".

**LabAutomation Conference in Palm Springs, CA, U.S.A** – *Association for Laboratory Automation*
**Poster presentation,** 01/2006
- Title: "Automated Generation of AnIML Documents by Analytical Instruments".

## Languages

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| German: | native speaker/second language |
| English: | fluent (spoken and written) |
| Russian: | native speaker/second language |

**Recommendations on request ● Available for relocation**