

Andrzej Bialecki

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P E R S O N A L D A T A

MARITAL STATUS: MARRIED, 2 CHILDREN

NATIONALITY: POLISH

BORN: 1965

PLACE OF BIRTH: WARSAW, POLAND

F O R M A L E D U C A T I O N

Warsaw Technical University

1986 - 1991

Degree: M. Sc. in Electronics

I have studied at the Institute of Radio-Electronics. During the last two years of my studies I specialized in microcontroller system design and programming. The subject of my thesis was to design and build a programmable wave generator, controlled by an IEC-625 bus interface. The project included hardware design (it was built around an Intel's 8051 μ C with a D/A converter, an LCD screen and numeric keypad) as well as writing the system software (in 8051 assembler). I received excellent marks for this project.

L A N G U A G E S

ENGLISH: FLUENT, SPOKEN AND WRITTEN

RUSSIAN: SPOKEN AND WRITTEN

SWEDISH: BASIC

POLISH: NATIVE

COMPUTER LANGUAGES:

C (in Unix environment), Java 2 (SE and J2EE), SQL (and basic database design skills), several interpreted (such as JavaScript, Perl, PHP, Python, AWK, Bourne shell...)

O P E R A T I N G S Y S T E M S

UNIX SYSTEMS:

- Solaris, SCO, FreeBSD, Linux. On all platforms I have user, administrator and developer skill levels. On FreeBSD platform I have exceptional skills both in administration and development, including OS kernel development.

MICROSOFT SYSTEMS:

- DOS/Windows 3.x, Windows 95, Windows NT (including certified course in administration), Windows 2000.

NETWORK EQUIPMENT:

- Basic equipment (like hubs, switches, routers) – configuration and administration
- High- and medium-end Cisco routers, ATM switches, ISDN routers – as above
- Classic and fiber-optic network components, ATM monitoring and diagnostic equipment

P R O F E S S I O N A L S K I L L S

SYSTEM DESIGN:

- Object-oriented development in Java with UML and reusable software patterns.
- Solid knowledge of UML 1.3 and its application to business modeling.
 - Active participation in international standardisation efforts for electronic commerce – UN/CEFACT ebXML, and CEN/ISSS Workshop for E-Commerce
- Rational Unified Process (RUP) software design methodology.
- Extensive knowledge of XML, XSL and XML-based protocols (SOAP, XML/PRC, BizTalk...), including practical experience in building software solutions using these technologies.
- Experience in architecting scalable multi-tier e-commerce solutions, based on Enterprise Java Beans technology (J2EE).
 - Including intermediate skills for DHTML design (HTML, CSS, JavaScript)
- Experience in designing knowledge-driven systems for business data management, using ontologies and frame-based knowledge systems.
- Familiarity with Information Retrieval (IR) issues, and Natural Language Processing (NLP). Co-author of a patent application in the area of unsupervised topic detection and tracking.
- Practical experience with software development tools (editors, compilers, IDEs, scripting languages, version management systems like CVS and SourceSafe, GUI builders, etc.).
- Solid knowledge of security-related issues, including network security, authentication and authorization in X.509 PKI structures (including practical experience in setting up a Certification Authority), and practical knowledge of several token-based authentication systems.

SYSTEM INTEGRATION:

- Practical experience in integrating heterogeneous computer networks, OS architectures and software systems.
- Experience in using several proprietary tools for business system integration.
- Solid theoretical knowledge of system integration and data semantic issues.
- Extensive knowledge of e-commerce standards and frameworks (EDIFACT, RosettaNet, ebXML and others), and Web Services (WSDL, SOAP, XML-RPC)

M A N A G E M E N T S K I L L S

Team leader:

- For ca. 1 year I was a leader of international development team. That team consisted of 5 software developers and 3 operation support people.
- I was responsible for developing the detailed requirements specification, system analysis and design, and implementation of e-commerce document management systems.
- I was also deeply involved in the implementation and system deployment phases.

Project manager:

- For ca. 2 years I've been working as a project manager and chief system architect in Sweden. I managed a team of 15 software developers and 5 operation support people.
- My responsibilities included working with various stakeholders (the company management, marketing, customers, team members...) to specify the requirements for the products, supervising the architectural design of the solutions, updating the management on the project progress, working with the project budget, and supervising the daily work of the project team members.
- I was also partly involved in the implementation and deployment phases of the projects.

Researcher:

- For ca. 3 years I've been leading a research project in the area of business system integration principles, collaborating with both academic and industrial contributors from various European countries.
- This project required administrative skills related to the coordination of the efforts and discussion meetings planning, but most of all it required the skills to integrate and manage diverse contributions prepared by researchers with different backgrounds, different skills and from different cultures, and the ability to lead the technical discussions related to the project.
- I worked closely with academic research teams at Swedish University of Technology (KTH) in Stockholm, in the area of conceptual modeling and business modeling. The results of that work contributed also to a couple of PhD theses.
- This part of my work also included frequent preparation of comparative studies and reports on various competitive solutions and product offerings, and then advising the management in the technology-related decisions.
- This position equipped me with excellent public speaking skills, including both standard „lecture“-style presentations, as well as live software demonstrations and discussions with audience.
- I also have experience in participation in international conferences, both as a speaker and as a chairman.

P R O F E S S I O N A L E X P E R I E N C E

Campus Crusade for Christ

(A Christian missionary organization)

1992 - 1995

Position: Training Materials Coordinator

I was responsible for translating, editing and pre-pressing training materials. This included proof-reading, working with graphics design, and additionally serving as a computer equipment support person.

Position: IT Coordinator

I was responsible for design and deployment of communication network which served to exchange the organization's information. Since at that time Internet was very expensive and not popular in Poland, this system was built around a concept of

Bulletin Board System. After successful deployment of the system I was maintaining it, until it was eventually phased out by growing popularity of Internet.

Research and Academic Network (NASK)

1995 – 1999

(I was assigned to some of the following positions on part-time basis, so that some of them overlap).

Position: WARMAN (Warsaw Metropolitan Area Network) Project Team member

Together with a team of other engineers we were responsible for design and implementation of the Warsaw MAN. The network core is using ATM technology (we used General DataComm equipment), and the edge services are provided by (mainly) Cisco routers. This project required knowledge of ATM standards and equipment, as well as traditional TCP/IP solutions.

Position: Traffic monitoring and billing system designer

This position involved the responsibility for designing the real-time traffic monitoring system, and then writing additional software packages to translate the traffic records into billing information. NASK was the first company in Europe (and one of the first few in the world) to introduce system of charging its customers based on the real Internet traffic they generated.

This task required very good knowledge of TCP/IP protocol stack, the traffic flow in the nation-wide network, UNIX / C programming skills (including advanced data structures and databases), as well as ability to build reliable „24hx7d” network appliances (hardware and software design). Some of the services in that system were implemented using FreeBSD-based servers, which proved to be surprisingly stable and efficient. The initial design and implementation took ca. 4 months, then additional 4 months for writing necessary additions and patches.

Position: Security Team (CERT) member

This was a part-time position, which involved various projects of hardening company's as well as customers' networks. During this period I was also giving lectures on security-related conferences, presenting end-to-end enterprise security solutions.

This position equipped me with knowledge and experience of security solutions and standards, as well as practical knowledge of issues such as: cryptography, X.509 certificates and PKI structures, enterprise security policy etc.

I was also involved in design and implementation of a firewall and server farm for one of our big customers (their internal network comprises of several thousand hosts). The project included such aspects as: strong authentication (token-based), address translation, VPNs, WWW and mail services, etc.

Position: Backbone Network Design and Support Team member

I was responsible for administration of some LAN servers and configuration of ATM equipment. My assignments involved various programming-related projects and research. This usually meant very practical research which ended up in working implementation. Some of my achievements include:

- **UPS management system**

This project I did together with one other developer. The reason behind this project was that our company's network was very broad, and needed a good monitoring system for its UPS devices. Unfortunately, no management system already present was able to cope with this task, especially because of the variety of legacy equipment.

The management system we designed was written entirely in Java, so that it was very portable and platform-independent. It supported several types of UPS devices manufactured by different vendors, each using its own protocol (in most cases we reverse-engineered the protocols because of lack of documentation). It's a highly modular, multi-threaded application which is able to monitor many remote devices. I've written also a WWW server built into that system, which allows to watch the current status of devices and set their parameters. This system was being deployed when I left the company.

- **ATM protocol monitor and analyzer**

It's often the case that large ATM networks behave in strange ways. Our company was in great need of a cheap solution to monitor and analyze traffic on several ATM links.

I was assigned a task of building such a device, and write necessary software to be able to solve some problems in ATM signalling. This involved building the necessary hardware as well as writing appropriate software.

The project has been completed successfully, and the device allows to analyze the real traffic on a cell-by-cell basis, including full UNI3.1 signalling. It also implements simple SAR (segmentation and reassembly) facilities to analyze higher layers' protocols (up to the actual user data payload).

This task required very detailed knowledge of many protocol stacks, as well as advanced programming and hardware skills.

WebGiro AB, Sweden

1999 – 2002

Position: Project Leader and System Architect

I was responsible for design of a prototype web-based e-commerce system for handling business documents and online payments. The system was based on Java servlets and JSP, with an SQL database as a back-end.

This project included also a significant part related to security, based on the use of Public Key Infrastructure (PKI). I was deeply involved in the integration of our solution with a commercial Certificate Authority product, and then I supervised the deployment of the solution, including the process of developing the company's security policy.

During this and the following projects I started also to study the areas of system integration, business modeling and customer-driven development.

Position: Chief Technology Officer (CTO)

I was responsible for the technical department in the company (ca. 20 people). This work included two main aspects:

- **Management:** managing the people, budget, and other resources to meet the business goals set by the company's management.
- **Technical:** responsibility for the overall architectural decisions, day-to-day supervision of the development work, analysis and requirement specifications for new products and product

updates based on the customer demands, market research for system component providers and competitive solutions, assistance to the CEO in setting the medium- and long-term strategic goals

Position: Head of R&D, Chief System Architect

I was responsible for the research in the area of new e-commerce solutions, and application of the results to our product line. I was also responsible for supervising the overall architecture of our products. Also, during this time I have been involved in a standardization project related to system integration and business modeling.

This position involved the following activities:

- System architecture and software development studies: I devoted significant efforts to learn practical UML-driven object oriented development, and Rational Unified Process for software development. I had an opportunity to test these skills in several demanding projects (working with a team of 20 people), which delivered the required functionality. After that I continued to study UML to become fluent also in conceptual modeling.
- Research in the area of e-commerce standards: I was actively involved in the work of UN/CEFACT ebXML, I also gained a detailed knowledge of several existing e-commerce standards (EDIFACT, RosettaNet, OAGI, xCBL, BizTalk). This part of my work required extensive knowledge of XML (and related standards like XSL, XML Schema) and XML-based protocols (SOAP, XML/RPC, ebXML, BizTalk). During this time I was also working on several prototype implementations of new ideas, using Java platform.
- Research in the area of system integration: I became familiar with several proprietary tools for system integration (BEA eLink, HP ProcessManager, Microsoft BizTalk, DataJunction, StreamServe etc), and with several underlying methodologies. I was also leading a European standardization project in the area of system integration methodologies.
- Research in the area of business modeling: close cooperation with UN/CEFACT ebXML and ebTWG groups in the area of e-commerce standards, business modeling, economic modeling etc. I gained expertise in one of the key approaches to enterprise modeling called „REA” (Resource-Event-Agent), where I made some unique contributions (e.g. I created the first formal REA ontology).
- Research in the area of Information Retrieval and Knowledge Management: the focus of the WebGiro product line was efficient and secure communication of business information in electronic forms. In order to enhance the features of the products and give us a competitive edge, I was assigned a task to investigate and prototype new functionality related to context-driven information management. This concept allows companies to more efficiently manage their documents through a special context-aware information linking, so that all related information is directly accessible from whatever context the users are working with. This research was completed successfully, and based on a prototype I designed the company was implementing a new product to be launched.

European Committee for Standardisation, Internet Society Standardisation Systems (CEN/ISSS) 2001 – 2002

Position: Chairman of the „E-Commerce Integration Meta-Framework” (ECIMF) project.

The ECIMF project, acting under auspices of CEN/ISSS Workshop for Electronic Commerce, is an 18-month long international effort to provide a standardized methodology and specification for designing and implementing integration bridges between currently incompatible systems. The scope of the project includes both interoperability between different e-commerce standards, as well as integration of internal legacy systems with external e-commerce interfaces required by business partners.

I have a privilege of chairing that project, and I'm also the editor and one of the main contributors to the deliverables. The detailed project description, as well as all related materials, can be found at the following website: [HTTP://WWW.ECIMF.ORG](http://www.ecimf.org) .

This project required intensive studies and education in areas related to knowledge management (ontologies, information retrieval, semantic web), business modeling, and getting familiar with most major e-commerce standards.

Position: Member of the Chairman Advisory Group for CEN/ISSS Workshop for E-Commerce.

My responsibilities include participation in strategy planning and management of the CEN/ISSS Workshop for E-Commerce. This means providing input to both new and existing projects, and working together with other project chairs to support the Workshop chairman in the management of all projects.

Concord Consulting Group, Inc.

2003 -

Position: CTO

In my current position I'm leading a product development team. The product we are developing (named myWorkBase) uses Artificial Intelligence, NLP and Information Retrieval techniques to significantly improve efficiency of day-to-day work with large amounts of information. It uses unique approach in building semantic networks of collected knowledge, and presenting them in a way acceptable to average computer user.

O T H E R P R O J E C T S

(The following projects were under specific contracts for one of large banks in Poland.)

- **User front-end for home-banking system**

This project involved writing an application which would serve as a user shell running on central home-banking system server. The most important requirements were: paranoid security-awareness, extensive logging, efficiency.

This application has been deployed and it was serving several thousand of bank customers, until it was phased out by a commercial e-banking solution.

- **Authentication services for home-banking system**

This project was related to the one above. Its scope was to provide reliable and efficient authentication server for the home-banking system (previously used system was becoming a bottleneck). The project involved designing and implementing a set of cooperating services.

This project required knowledge of authentication and security issues, as well as database design, programming in client-server environment and meeting high security requirements.

This application has been deployed and it was serving a constantly growing number of bank customers. The number of user accounts was around several tens of thousand. Eventually, this application was phased out and replaced by a complete commercial e-banking solution.

(The following projects are my professional hobbies, available under Open Source licenses)

- **Embedded systems design**

I started a project of re-designing one of Unix-like operating systems (FreeBSD) to operate in embedded environments (e.g. network appliances, single-board computers and the like). The project is called PicoBSD, and after initial stages of development it has been incorporated into official FreeBSD source tree.

Currently PicoBSD provides fully functional embedded solution. It is widely used by thousands of users, including commercial entities. It's applications range from a network router, to personal dial-up tool, to home-automation appliance, to radar-data gathering and processing device, and to communications server, to name a few.

This project provided me with experience of embedded systems design, and its specialties, such as designing to meet very limited system resources, or to handle unusual hardware combinations. It also required writing many applications dealing closely with OS internal structures.

- **Stemmer / lemmatizer for Polish language**

Using my experience in the area of Information Retrieval and text processing, I'm working in my spare time on an efficient algorithmic stemmer for Polish language. A good stemmer is a key component in an IR system (such as e.g. a search engine). Such stemmers exist for many other languages, but so far Polish language lacked a freely available algorithmic stemmer. The only other stemmer (by Dawid Weiss) uses a dictionary approach, so it is limited only to the words stored in a dictionary.

The prototype version of the stemmer achieves good accuracy (over 70% for previously unseen words), is implemented in Java and distributed under very liberal license. Many people expressed their interest in its further development.

M E M B E R S H I P S

- CEN/ISSS Chairman of ECIMF project (<http://www.cenorm.be/issc>, <http://www.ecimf.org>)
- Member of CEN/ISSS Workshop for Electronic Commerce Chairman Advisory Group
- European Commission Interoperability Expert Group member
- Expert/Evaluator for European Commission Framework Programme 6 (FP-6)
- Member of Industrial Advisory Board to FP5/IST „Semantic Web-enabled Web Services” project (<http://swws.semanticweb.org>)
- Member of USENIX – The Advanced Computing Systems Association (<http://www.usenix.org>)
- FreeBSD development team member (<http://www.freebsd.org>)

H O B B I E S A N D A R E A S O F I N T E R E S T

I'm a big fan of FreeBSD operating system (and Open Source projects in general). I'm one of the official developers of this system.

I like to learn new things, and face new challenges. In fact, the aspect of something being new to me and complicated enough is often one of important factors when considering my involvement in a project.

I also like to play the guitar, mostly classical music and some folk songs. I'm also a firmly believing Christian.