Michael Christen

Postal Address
Kupferhammer 59
60439 Frankfurt a. M.
Germany

Personal Data
Nationality: German
Year of birth: 1967

Phone and E-mail Address
Phone: +49 177 6 42 42 35
E-mail: mc@yacy.net

Education

**Master's Degree (MSc) in Computer Science
(German Degree: 'Diplom-Informatiker')**
Saarland University; Saarbrücken, Germany, 1997

**Bachelor's Degree (BSc) in Computer Science
(German Degree: ' Vordiplom Informatik')**
University of Kaiserslautern; Kaiserslautern, Germany, 1993

Specialist Area and Professional Training

Information Retrieval & Knowledge Managements
2008-2010: Search Engine Integration
- Architecture to integrate FAST ESP Search Appliances for the Deutsche Telekom
- Feasability study and architecture of the „Deutsche Digitale Bibliothek" (German Digital
  Library, a web portal for cultural heritage in Germany) for the German National Library

2004-2010: Product design for search engines technology
- production of a peer-to-peer based web search engine (GPL software, since 2004)
- management of an open-source software development community
- business concepts and press releases (see ‚press' chapter)

Digital Media
2007: Consulting regarding IP-TV, DRM, video-encoding at T-Online
2008: Architecture of the portal for the "Deutsche Digitale Bibliothek"

Project Management and Account Management
1999-2000: Project Management for Software Integration
- Software Change Management: Migration of one billing-product to another, Mobile Number
  Portability introduction, Euro-transition
- Project Manager and Account-Manager for Installations of the Billing System BSCS at LHS
2005-2008: Project Management Software Development
- Head of a open-source software (YaCy) development team with more than 10 members

Software Architect (Design and Programming)
1989-2010: over 20 years of solid hands-on experience as a software architect
- software architecture for a scalable search engine (Deutsche Telekom); 2008-2010
- migration studies and production concepts for large enterprise solutions (Telekom Austria, E-
Plus); 2000, 2002
- benchmarking, tuning and design-change specifications (1998-2000)
- client-server and multi-tier applications (ftp and web server, peer-to-peer search engine), 2002-
2008
- database reports for billing systems (E-Plus. Infranet Portal / i-Mode); 2000-2001
- open-source software-development (1989-2010, see publications)

Work Experience

Fraunhofer Institute for Intelligent Analysis and Information Systems (freeance)
(Fraunhofer IAIS)

January 2010 & June 2010:
Integration Expert and Architecture Consultant to refine Details for the Deutsche Digitale Bibliothek realisation at the Fraunhofer IAIS Institute.

Deutsche Telekom (was: T-Online), Frankfurt am Main (freelance)

October 2008 – March 2010:
Architecture of a search platform for an index over one billion (10^9) documents using an integration of 60 FAST ESP search engine instances for a high-availability search accepting 100 queries per second. Development of content integration connectors to feed the indexer with 9000 documents per second. Using Apache Active MQ with integration of the ESP Content Integration API. Definition of retrieval processes and hand-over protocols. Concepts to integrate overarching search applications (FAST Unity and Telekom in-house software modules).

German National Library (Deutsche Nationalbibliothek), Frankfurt am Main (freelance)

January 2008 – June 2008:
Feasibility Study for the 'Deutsche Digitale Bibliothek', a project for the digitalization and consolidation of all objects in all libraries, museums and archives in Germany. Creation of an IT-architecture, which is capable of storing and accessing of up to 300 million data records. Concepts for standard and semantic search, integration into an international platform (EDL, europeana.eu). Writing of tender documents.

YaCy.net Search Engine, Frankfurt am Main

December 2003 – today:
Founding, project management, system architecture and implementation of a web search engine technology. Publications and public talks about search engine technology. The project became a good response in the press media and the software YaCy is considered as the only software for a peer-to-peer based distributed web search technology. The software is currently in use at the Karlsruhe Institute of Technology ('Sciencenet') and at the German meta-search platform metager.de.

T-Online, Darmstadt (freelance)

January 2007 – June 2007:
Specialist for Digital Rights Management protocols and license concepts in the IP-TV project. Creation of architecture targets for standardization and interoperability in context to DRM requirements. Content-owner contract evaluation and negotiation. Processing of audio/video requirements to the production platform. Patent evaluation.

T-Systems, Frankfurt am Main (freelance)

February 2006 – July 2006:
Concept writing of a broadband selling system (MPLS/VPN services for business customers) for T-Systems. User interface design of the SAP R/3 Webweaver application server.

T-Online, Darmstadt, Germany (freelance)

July 2004 – March 2005:
Production support for T-Online Back-End Systems for internal office services, customer-care application servers and customer premium (payable) services. Availability and security of the J2EE Application Server (BEA). Analysis and solution of system failures; creation of documentation and run-books for standard production tasks and failure cases.

Telekom Austria, Vienna, Austria (freelance)

October 2002 – August 2003:
Integration Architect for the replacement of Telekom Austria's proprietary billing system by a standard billing solution, Maxbill. Overall architecture development and supervision. Communication of solutions between departments. Research of integration solutions and concepts, interface definition, coordination of integrator and customer. Architecture of complete new solutions, especially generation of bill print output protocol. Creation of a integration concept.

e-plus Mobilfunk GmbH & Co KG, Düsseldorf, Germany (freelance)

September - December 2001:
Production Concept and Security Concept for the BSS (Business Support System, the IP-Billing and provisioning system) of the new IP-based product "i-mode" from the German GSM Network Operator e-plus. Installation/maintenance of the IP-billing system "Infranet", definition of network connections, coding and configuration of database report scripts and file transfer processes.

March - September 2001:
Introduction of mobile number portability (MNP) and Euro-capability of the IP-Billing software IAF Horizon / Solect. Technical (sub-) project management, change request specification and production start support.

EDS (Electronic Data Systems), Rüsselsheim/Munich, Germany (freelance)

June - December 2000:

Analyse and design of the production environment for the newly introduced IP-billing product ‚Infranet' from Portal. Integration into productive BSCS environment of the voice- and internet-provider Callino with add-on interfaces from EDS. Interface design, testing and integration of customer-care, data collection and web-based self-care interfaces. Design of the production concept, writing of a production manual.

LHS AG, Dreieich, Frankfurt, Germany & several states in Africa (permanent employment)

December 1997 - May 2000:
On-site and Back-office project management, consulting and also acting account management for several African customers. Design and functional specification of customer's extensions to BSCS. Preparation and execution of acceptance test.

Max-Planck-Institute for Computer Science "MPII", Saarbrücken, Germany
(temporary employment)

April 1994 - September 1997:

Profiling of a theorem prover and writing of converters for logic languages in PROLOG.

October 1993 - March 1994:

Teaching assistant of the lecture "Automated Theorem Proving" with own training group.

German Institute for Artificial Intelligence "DFKI", Kaiserslautern, Germany
(freelance)

May 1993 - September 1993:

Testing and profiling of the institutes 'functional' Prolog "RELFUN", implemented in Common Lisp. Coding of test suites in a language similar to Prolog.

Awards

Honorary Member of the SuMa-eV

Juli 2005:

Appointed as honorary member of the SuMa-eV („Association for Free Access of Information" under the patronage of the inventor of the MP3 file format Prof. Dr. Karheinz Brandenburg and the chair of the SuMa-eV association and leader of the metager.de platform Dr. Wolfgang Sander-Beuermann). Thea ward honours the extraordinary achievments for the construction of a decentralized, peer-to-peer based and kooperative search engine technology 'YaCy'.

Professional Skills

Computer Science:	
Quality assurance:	Availability of services in production environments
Security:	Security concepts for production environments
Artificial Intelligence:	Logic, Planning, Heuristic Search, Expert Systems
General:	Data Structures, Compilers, Computer Vision
Theoretical:	Formal Logic, Automated Deduction
Information Retrieval / Suchmaschinentechnik:	
Enterprise Search:	Construction of search engine clusters (horizontal and vertical scaling for expandable number of documents and queries per second. Scaling done for a quality of service request for 1 billion (10^9) documets and 100 queries per second while ensuring 99,9% availability.
Produkte:	**FAST ESP**: architecture for integration of FAST ESP Software for very large numbers of documents. **YaCy**: I am the maintainer of the peer-to-peer search engine softare YaCy consisting of a no-sql database system, parsinng and indexin components, a web-crawler, a web server and more. (Please see 'awards' and 'publications')

	Solr/lucene: basic knowledge, file & web-connector integration
Standards:	OpenSearch; SRU
Data Mining:	Content-integration of heterogenous data types and classification. Usage of propert data types and rfc-Standards (eml, html, rss, csv, mime, rdf), scientific standards (EAD for archives, MARC21/XML and METS/MODS for libraries) and industrial standards (pdf, ps, doc, xls, ppt, fla, gz, tar) according to classification methods (Dublin Core / DC and DDC).
Harvesting:	Architecture of web crawlers, rss reader, connection of standard library services (OAI-PMH, Z39.50, FTP polling, SQL queries)
Visualisierung:	Interface design for search engine appliances (Standard Search, Faceted Search, Search Widgets, Live Search); evaluation and presentation of link graphs (SEO-Tools).
Classification Techniques	Dublin Core (DC), Dewey Decimal Classification (DDC), Conceptual Reference Model, Ontologie for cultural heritage documentation (CIDOC-CRM)
Semantic Web:	Microformats (XHTML+RDFa), FOAF (social networks), RDF

Netzwork Services:

Web Server:	**Apache** (installation, configuration, production support)
Web Applications:	**phpbb** (web forum), **MediaWiki** (wiki system)
Application-Server:	**Bea WebLogic**, J2EE / Java2 Platform Enterprise Server (Servlet / Web-Application programming)
Other Protocols:	FTP-Server (own product AnomicFTPD), Peer-to-Peer technologie (YaCy)

Configuration Management, Workflow, Integrated Development Environments:

Software IDE	NetBeans, Eclipse, Visual Age for Java
Software Life-Cycle Management:	UML as concept, professional work with software life-cycle models (V-model, saw tooth, spiral, etc.)
Workflow Management:	Lotus Notes, Rational RequisitePro
Version Tracking/ Configuration management:	CMVC, TeamConnection (Feature- and Defect-tracking)

Programming Languages:

Object Oriented:	Java: extensive knowledge about J2SE and J2EE libraries, including JDBC, Swing etc., C++, JavaScript,
Imperative:	C, Pascal, Modula2
Functional:	Lisp (self-programmed Lisp-Interpreter)
Logical:	Prolog (self-programmed Prolog-Interpreter as part of Master's Thesis)
Shell Command:	sh, csh, tcsh, AppleScript
Query-Languages:	SQL, JDBC-programming
Assembler:	Z80-Assembler (publication of a BASIC command extension written in Z80-Assembler)

Database Applications:

Semantic Web Repositories:	Fundamental knowledge about Jena and Sesame
Oracle:	SQL; back-up and recovering (export/import), JDBC

	programming
Standards / Protocols:	
TCP/IP network protocols:	Routing, HTTP/FTP/Proxy Server installation and configuration
WLAN:	Hot-Spot + router configuration, security protocols, ssh-tunneling
Server Programming:	HTTP and FTP protocols; extensive experience due to self-coded HTTP and FTP servers (written in Java)
e-mail:	SMTP, POP3; configuration and protocol low-level client programming
Document Standards:	XML
Mark-up Languages:	HTML, JavaScript
Foreign languages:	
German:	Mother language
English:	Fluent

Press Releases about my work

There are many articles in print media and one mention in a TV magazine about my work as software architect. Please order a press map for all details. Here is a short list of some publications about ‚YaCy', an Open Source Search Engine which I developed:

TV Magazine „neues" in 3SAT (German Television)
showed 6th May 2006 and 9th May 2006. This was a report about YaCy from the LinuxTag expo in Wiesbaden at 3rd May 2006. The report mentioned YaCy as one of four most interesting projects at the Linux Exhibition with more than 90 projects. The report includes also a short interview with me.

"Europäische Gegenströmungen"
2006, article in the german computer magazine c't 10/2005, page 172-174, heise-Verlag.
Content: Das YaCy-Suchmaschinenprojekt wird als eine von vier Alternativen zu Google präsentiert.

..and many more!