Marek Šmíd

Education

2009–2017 **Ph.D.**, *Czech Technical University (CTU) in Prague, Faculty of Electrical Engineering (FEE)*, Prague.
Ph.D. in Artificial Intelligence in the field of knowledge base systems, PhD thesis topic: "Methods of effective knowledge base representation". The preparation paper for the dissertation "Proposal of an Ontology-Based GIS" was accepted in 2011. The doctoral examination was passed in 2011 with honors.

2007–2009 **Ing.**, *Czech Technical University (CTU) in Prague, Faculty of Electrical Engineering (FEE)*, Prague, *with honors, weighted grade average 1.0*.
Master degree in Artificial Intelligence, master thesis: "Using Databases for Description Logics" (studying the power of DL-Lite language).

2008 **summer project**, *Open University*, Milton Keynes, United Kingdom.
During summer break in 2008 took part for three months on a project at Open University. One of my outputs of the project named "G-Learn" is a paper [7].

2005–2006 **study abroad**, *Milwaukee School of Engineering (MSOE) (www.msoe.edu)*, Milwaukee, WI, USA, *GPA 3.78*.
After the second bachelor year at CTU took study-abroad student-exchange one-year program at MSOE, the best choice in USA available at the moment at CTU for an exchange program.

2003–2007 **Bc.**, *Czech Technical University (CTU) in Prague, Faculty of Electrical Engineering (FEE)*, Prague, *with honors, weighted grade average 1.17*.
Bachelor degree in Cybernetics and Measurement, bachelor thesis: "Advanced Diagnostics of Automotive Systems" (an application of a multi-agent system).

Experience

2017–now **Senior Software Engineer, Artificial Intelligence**, *Rocket Fuel Inc./Sizmek*, Prague.
Machine learning in predictive marketing industry. ML models on Apache Spark, big data in Hive, HBase, and Couchbase. Coordination of local AI/ML team with teams in different countries.

2014–2017 **Software engineer**, *Cisco Systems s.r.o.*, Prague.
Developing the backend of a network breach detection and analytics system based on machine learning, including integrations with several systems. Following agile methodologies, DevOps model, automated builds, infrastructure as a code, continuous integration. Big data processing.

2009–2014 **Research assistant**, *Czech Technical University in Prague*, Prague.
Participating on projects:
○ Netcarity (a Networked Multisensor System for Elderly People: Health Care, Safety and Security in Home Environment. An integrated project of 6th framework program of European Community). Design and implementation of a Java EE 5 application server. [1]
○ Mondis (Development of a knowledge based for recording and analyzing structural failures of immovable cultural heritage objects. Supported by the Czech Ministry of culture). Extending a web mindmapping tool and deploying it in the Java Portal Liferay, development of a mobile application. [2, 3]

2006–2010 **Web developer**, *VMI (www.vmi.cz)*, Prague.
The web portal www.sledujauto.cz – a car surveillance system, allowing a user to see his/her car movement and other data in an interactive map and a driver's log. Responsible for complete setup – web pages, database, data ingest, map server. The system was used for the car pool of a major Czech company.

2006–2007 **Embedded device developer**, *VMI (www.vmi.cz)*, Prague.
A firmware for a microcontroller operated device, receiving signals from an observed system, and communicating via GSM modem.

2004–2005 **Industry automation**, *Novotný Chlazení (www.novotny-chlazeni.cz)*, Chrudim.
Programming PLC's (industrial controllers) for cooling stations for several Czech industrial manufacturings.

2000–2001 **Embedded system developer**, *Topol Software (www.topol.cz)*, Prague.
Hardware interface to connect incremental rotary encoders to a PC with a GIS software system. Complete development of HW and firmware, using an Atmel MCU.

Languages

Czech	native
English	fluent
German	pre-intermediate
Spanish	pre-intermediate

Teaching

Java EE	Course at CTU FEE teaching JPA, EJB, Servlets, JSF, using Glassfish server. In total 6 semesters in 2009–2014.
Database systems	Course at CTU FEE teaching SQL, transactions, normal forms, integrity, indexing, using PostgreSQL server. In summer 2010/2011, summer 2012/2013.

Computer skills

Programming	Java SE 8, Scala, Java ME, C, C# (.NET platform), Delphi; Bash scripting; intermediate in LISP and Prolog.
Web devel.	Java EE 5&6, Glassfish and Tomcat server deployment, Spring framework, Java JSF, XHTML, PHP, JavaScript, PHP Smarty.
Linux	Administration of Debian, Redhat/CentOS, Ubuntu. Puppet for system configuration, Cobbler for provisioning. Practical experience with securing a linux server – firewall, SELinux.
Databases	PostgreSQL, MySQL. Big data NoSQL technologies – HBase/MapR, Hive.

GIS	ESRI ArcMap, JavaScript client map libraries, spatial databases (PostGIS), UMN MapServer, OpenStreetMap data.
Semantic web	Web Ontology Language (OWL), Protégé, RDF, Linked Data.
Computing	Mathworks Matlab.
Security	Network protocols, symmetric and asymmetric cryptography (RSA), hashing. Public key cryptography – OpenSSL, certificates, setting up webservers. SSH config.
Cryptography	Mathematical background by online Cryptography 1 course by Stanford.
Big data	Apache Storm, Spark, Flink.
Machine Learning	TensorFlow, Julia, Spark ML.

Electronic skills

Firmware	Development in C and assembly of Intel 51, Atmel AVR, and Motorola HC11 MCU families.
MCU arch.	Knowledge of architecture of Intel 51 core, Atmel AVR, Motorola HC11, and NXP ARM Cortex.
Peripherals	Experience using I2C, SPI, USB, Ethernet, UART.

References

Dr. William Barnekow (barnekow@msoe.edu) and Dr. Steven Reyer (reyer@msoe.edu), both full time professors at MSOE (Milwaukee School of Engineering), Milwaukee, Wisconsin, USA. References with their permission, upon excellent project achievements at MSOE.

Publications

[1] Ilse Bierhoff, Bas Goossen, Ken Wintjens, Claire Huijnen, Petr Křemen, Zdeněk Kouba, František Válek, Marek Šmíd, Miroslav Blaško, and Petra Panis. Participatory Design of Netcarity Services Using Different Perspectives. In *Proceedings of the first International AEGIS Conference*, volume 7, pages 202–209, Seville, 2010. AEGIS project.

[2] Petr Křemen, Miroslav Blaško, Marek Šmíd, Zdeněk Kouba, Martin Ledvinka, and Bogdan Kostov. MONDIS: Using Ontologies for Monument Damage Descriptions. In *Znalosti 2014*, pages 66–69, Praha, 2014. VŠE.

[3] Petr Křemen, Pavel Mička, Miroslav Blaško, and Marek Šmíd. Ontology-Driven Mindmapping. In *Proceedings of the 8th International Conference on Semantic Systems*, pages 125–132, New York, 2012. ACM.

[4] Petr Křemen, Marek Šmíd, and Zdeněk Kouba. OWLDiff: A Practical Tool for Comparison and Merge of OWL Ontologies. In *Twenty-Second International Workshop on Database and Expert System Applications (DEXA)*, pages 229–233, Los Alamitos, 2011. IEEE Computer Society.

[5] Marek Šmíd and Zdeněk Kouba. OnGIS: Metody vyhledávání v geografických datech řízené ontologiemi. In *Digitální technologie v geoinformatice, kartografii a dálkovém*

průzkumu Země, pages 107–116, Praha, 2012. ČVUT, Fakulta stavební, Katedra mapování a kartografie.

[6] Marek Šmíd and Zdeněk Kouba. OnGIS: Ontology driven geospatial search and integration. In *Terra Cognita Workshop on Foundations, Technologies and Applications of the Geospatial Web*, pages 27–38, Tilburg, 2012. CEUR Workshop Proceedings.

[7] Marek Šmíd, Sylvia Truman, Paul Mulholland, Zdeněk Zdráhal, and Sabina Crouch. G-Learn: An Exploratory Learning Environment for School Level Geography. In *Znalosti 2009 - sborník příspěvků*, pages 213–224, Bratislava, 2009. Vydavateľstvo STU.

[8] Marek Šmíd and Petr Křemen. OnGIS: Semantic query broker for heterogeneous geospatial data sources. *Open Journal of Semantic Web (OJSW)*, 3(1):32–50, 2016.