Mikalai Krapivin

I am a Professional researcher and software developer with more than 10 years of experience in coding, software management and scientific research. I graduated as a PhD in Computer Science in Trento, Italy, in March 2010.

Biography: I was born in Minsk, Belarus, July 20, 1978. I have the Master of Science degree in Theoretical Physics, issued by Belarusian State University, Minsk, Belarus in 2000. I worked in commercial IT Company as developer, lead developer, project leader. I entered at University of Trento, Italy, at 2006 for PhD program.
Languages: Russian (native), English (fluent) written and spoken, Italian (basic).

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Research interests

Numerical computations. Discrete mathematics and numeric computations. Knowledge of mainstream tools (Mathematica, MathLab).

Scientific programming. Data Mining, Machine Learning Algorithms coding and usage, knowledge of WEKA (KEA) machine learning suite.

Distributed multi-tier applications. Building failover solutions; tuning of load-balancing in cluster environment. Experience in tuning of SQL-aware database back-end for dozen of millions updates. Experience in web-oriented and warehouse solutions with 24/7 availability.

Scientometrics. Research progress measuring, scientific indicators research and computation, PageRank.

Machine Learning. Support Vector Machine, Hidden Markov Models, Decision Trees, Kernel Methods, Inferrence, Random Forest. Text processing and mining with help of machine learning, texts classification.

Scientific research experience

February 2006 – March 2010, University of Trento, Italy

The major directions of my research were:
1. Accurate information exctraction (using the content of autonomous digital library SiteceerX) with help of machine learning methods. Extraction of key-phrases (concepts, tags, may be used for classification) from structured and unstructured documents documents.
2. Scientometrics indicators for new era of publications – liquid publications (liquidpub.org), calculating and developing citation based scientometrics indicators. PageRank usage for scientific metric computation, modification of PageRank. The application I work on is http://demo.liquidpub.org:8081/ResevalGUI/.

I have been collaborating with Prof. Maurizio Marchese, Prof. Fabio Casati, I am a member of the Knowdive scientific group of Prof. F. Giunchiglia.

June 2000 – June 2003 Institute for Nuclear Problems, Minsk, Belarus

This research was mainly focused on the theoretical investigation of carbon nanotubes (nanoscale structures). Scattering of electromagnetic waves by nanotube was considered in semi-classical approach. The problem were derived to maxwell equations system with

quantum theory-based conductivity computation and resolved using Wiener-Hopf factorization method. Analysis and 3D numerical computations were plotted.

Major Publications

1. Mikalai Krapivin, Maurizio Marchese, [Lecture Notes in Computer Science](), Volume 5362/(2008), 144-153, Springer, "Focused Page Rank in Scientific Papers Ranking".

2. Mikalai Krapivin, Maurizio Marchese, Fabio Casati, COMPLEX (2009), China, Shaghai. "Exploring and Understanding Citation-based Scientific Metrics", [http://eprints.biblio.unitn.it/archive/00001426/01/022.pdf]()

3. Mikalai Krapivin, Maurizio Marchese, Andrei Yadrantsau, Yanchun Liang, Digital Information Management, ICDIM (2008), pp 105-112. London, "Unsupervised key-phrases extraction from scientific papers using domain and linguistic knowledge".

4. Mikalai Krapivin, International Workshop ECDL/VLDL (2008), Aarhus, Denmak, "Focused Page Rank Application for Scientific Papers Ranking".

5. Mikalai Krapivin, Aliaxander Autaeu, and Maurizio Marchese. "Large dataset for keyphrase extraction". Technical Report DISI-09-055, Trento, DISI, Italy, September (2009). (submitted to ICADL 2010).

6. Gregory Y. Slepyan, Mikalai. Krapivin, Sergey A. Maksimenko, Akhlesh Lakhtakia and Oleg M. Evtushenko International Journal of Electronics and Communications.(AEU) 55 (2001) No. 4, 273-280 "Scattering of Electromagnetic Waves by a Semi-Infinite Carbon Nanotube".

Software Development Skills

Software development using object-oriented approach (preferably using Java or C#) for Windows platform using the following programming languages, frameworks, RDBMS:
- DHTML, EJB, XML/XSD/XSL/XPath, JSP/ASP, Struts, Spring, Apache Tapestry, ASP.NET 1.1, ASP.NET 2.0 (novice), Ruby on Rails (novice)
- Java, Swing, Java Mobile (Blackberry), C#, JavaScript/AJAX/VBScript, Win Scripting Technologies
- Windows NT, Windows 95/98/2000/2003/XP/Vista, UNIX, Linux (including administration)
- MS SQL Server 7.0/2000/2005, Oracle 10g, MySql 5, Postgres 8, good knowledge of Hibernate.
- UML, ErWin, MS Project, MS Visio.
- OOP, Design patterns

Success story

February 2007 – March 2010
University of Trento Italy, [http://ict.unitn.it/](), [http://disi.unitn.it/~krapivin]()
Position: PhD student, Researcher

September 2000 – February 2007
EPAM Systems LLC [www.epam.com]()
Position: Lead Software Developer

September 1997 – September 2000
Institute for Nuclear Problems (INP) [http://inp.bsu.by/]()
Position: Physicist, Engineer

Projects:

LIQUIDPUB (University of Trento Project, present time)
http://liquidpub.org/
Role in project: Researcher, Developer, DB modeler

Technologies and frameworks were used:
1. <u>Coding part:</u> Oracle 10G, Java 1.6, NetBeans framework, GlassFish Application Server, Hibernate, REST-full web-services, Java SWING-based applets.
2. <u>Research part, description:</u> is in creating and implementing different scoring schemas to rank items in digital library, for instance for ranking scientific papers and researchers. Also I contribute in texts parsing and processing, extracting concepts from texts. For PageRank computation: coding algorithms.
3. <u>Research part, tools and methods:</u> SVM, Random Forrest, Naïve Bayes FalkSVM, RVM, Decision Trees machine learning. Knowing WEKA toolkit and KEA keyphrases extractor, NLP: Stanford parser, Wordnet, OpenNLP, MALT parser.

PROMETEUS
Role in project: Developer, Researcher

Project is highly creative and used various machine-learning to predict stock prices based on parsing texts about bids. I quit project since started PhD career.

Technologies used: JAVA 1.6, WEKA suite core API, UI based on Swing, Thinlet framework. Apache Tomcat, Oracle DB, Spring+Struts.

Scientific Part: SVM, NLP, text parsing, text classifying.

MOYOTALK
Role in project: Developer

This is a chat like g-talk or ICQ for blackberry.

Technologies used: JAVA ME, RIM simulators and suite, RIM plug-in for Eclipse 3.2

IDEATRAX
Role in project: Developer

The project is a kind of a social network, with possibility to be scaled and distributed. My role was UI and back-end development and support.

Technologies used: J2EE, Spring-MVC, Java, JSP, XML
Back-end platforms: Postgres RDBMS, Apache Web Server, Apache Tomcat.

PMOTION
Role in project: Development Team Lead

The project is a core system for big chain of restaurants (USA), system for managing menu, service, and very flexible discounts system. My role was EJB layer architect and supporter. I partly participated in front end, coding Struts-driven jsp with usage of JSTL tag library.

Technologies used: J2EE, EJB 2.0, Java, JSP, XML, Struts 2.0
Back-end platforms: DB2, Derby, Web Sphere.

EPMMKE (EPAM Marketing engine)

Role in project: Project Coordinator and System Architect

The project is a failover-based clustered solution that allows managing and tracking state of huge sites content in real time. The product provides complete integration with advertisement management and billing systems. It is designed to be used by large-scale hosting providers, but this build was customized to fit the needs of a large aeronautic company. The system supports integration with another product of the company – EPAM CMS.

Technologies used: J2EE, Java, JSP, XML, XSD, XSLT, HTML/DHTML, Transact SQL.
Back-end platforms: .NET, MSSQL 2000, Tomcat, WebLogic, JRun.

EPMLVS (EPAM CMS solution)
Role in project: Developer

Big web site with booking hotels/cars functionality used for Las Vegas hotels and casinos. Content of the site was managed with help of EPM CMS (see below).
Developing advertisement into www.lasvegas.com web pages using EPAM CMS and advertising system was DART (Doubleclick.com).

Technologies used: J2EE, Java, JSP, XML, XSD, XSLT.
Back-end platforms: IIS, MSSQL 2000, WebLogic.

EPMCMS (EPAM Content Management System)
Role in project: Lead Developer, Team Leader

There is big Content Management System (CMS) with the following main features: visual (XML-based) site designer, XML and HTML site content management, source control and history tracking, XML documents indexing, search, publishing validation, wizard-like actions flow. The tool is integrated with billing and advertisement tracking system (MKE).

Developing: Data Entry Form (DEF). DEF is the visual graph-based JavaScript-driven tool for putting content into CMS.

1) DEF Server Side: XSLT-driven support of visual designer, with DTD and Schema (XSD) support,
2) DEF Client side: Complicated MSXML COM + Jscript-based solution for building HTML forms and pages (with any structure description in external XSD files); rich user defined forms are supported.

   DEF operates with linked elements and XML nodes in hierarchical form; different kind of XSD types can be represented by various kinds of controls.

   Rich set of custom and pre-defined advanced tags are supported,

3) Developing JSP pages for publishing forms with custom tag-libraries. Coding DEF server and client side validation.

Technologies used: Java, JSP, XML, XSD, XSLT, JDBC, J2EE
Back-end platforms: MSSQL 2000, WebLogic, Apache, Tomcat, JRun.

TDCSP, EPAM (Online driving courses)
Role in project: Lead Developer, Team Leader

Online Driving Courses, light-weight pure ASP based solution.
Development of ASP pages to design learning courses (course designer) and run exams (course engine). Creating builds and managing team.

Technologies used: DHTML, ASP

Back-end platforms: IIS, MSSQL 7.0.

Isuzu (EPAM)
Role in project: Developer

Standalone java based application for auto dealers. Development of Java SWING application, including business logic and user interface. Development of IE 5.0-based tool for comparing of vehicles: DHTML and Java, JavaScript.

Technologies used: Java, Java Beans, DHTML, JavaScript
Back-end platforms: MSSQL 7.0, Java 1.0