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Objective

A challenging Ph.D. level research and engineering position in an influential company to apply and expand my knowledge, skills, and research accomplishments in the area of advanced web searching services to help analyze and discover information on the Web.

Summary of Qualifications

- Novel research results and promising yet unexplored ideas in the area of web information retrieval utilizing global linkage structure, associated text, and metadata.
- Proven experience in designing, implementation, optimizing, and evolving scalable high-performance distributed web searching and mining systems running on Linux clusters.
- Several years of object-oriented C++ design and development experience with systems of hundreds of thousands lines.

Research Interests

- Advanced web search engine services rooted in linkage-based page scoring algorithms.
- Distributed collaborative information categorization and ranking on the Web.
- High-performance fault-tolerant distributed systems for large-scale data manipulation.

Professional Achievements

- Authored Yuntis, <http://yuntis.ecsl.cs.sunysb.edu>, a comprehensive distributed web search engine prototype of 170,000 lines of C++ code with several innovative features. SUNY at Stony Brook, 2000 to 2003.
- Came up with a general method for efficient large-volume data manipulation of out-of-core data on clusters of workstations. SUNY at Stony Brook, 2001 to 2002.
- Invented a new model, the voting model, for computing quality scores of Web documents, that subsumes and improves on the PageRank model of Google. SUNY at Stony Brook, 1999 to 2000.
- Devised and implemented a decision procedure for rough set equalities. SUNY at Stony Brook, 1999.
- Developed an ordering for proving termination of term rewriting systems over higher-order terms without lambda-abstractions. SUNY at Stony Brook, 1997.
- Independently discovered and implemented a completion method for term rewriting systems over higher-order terms with ordering constraints. Moscow Engineering-Physics Institute, 1995 to 1996.

Education

Ph.D. in Computer Science, expected in May 2003. GPA 4.00/4 1996 to date

Dept. of Computer Science, State University of New York at Stony Brook, Stony Brook, NY, U.S.A.

Thesis: Design, Implementation, and Evaluation of a Comprehensive Web Search Engine.

Specialization: Score computation algorithms for web information retrieval. Algorithms and techniques for advanced web search engine features.

Graduate advisor (since 1999): Prof. Tzi-cker Chiueh

Former specialization: Theorem proving methods, rewriting, typing systems, specification languages.

Former advisor: Prof. Leo Bachmair

(M.S.) Diploma with honors in Applied Mathematics, Feb. 1996. GPA 4.96/5 1990 to 1996

Dept. of Cybernetics, Moscow State Engineering-Physics Institute (Technical University), Moscow, Russia.

Specialization: Rewriting based higher-order theorem proving with constraints.

Academic advisor: Prof. Oleg N. Perminov

Diploma Thesis: Term Rewriting Systems.

Selected Publications

All publications below are available at <http://www.ecsl.cs.sunysb.edu/~maxim/Papers/>.

Refereed Conference Papers

1. Implementation of A Modern Web Search Engine Cluster. Maxim Lifantsev and Tzi-cker Chiueh. Accepted for publication in *Proceedings of the FREENIX Track: 2003 USENIX Annual Technical Conference, June 9-14, 2003, San Antonio, Texas, USA*.
2. I/O-Conscious Data Preparation for Large-Scale Web Search Engines. Maxim Lifantsev and Tzi-cker Chiueh. *Proceedings of 28th International Conference on Very Large Data Bases, August 20-23, 2002, Hong Kong, China*, Morgan Kaufmann, Hong Kong, August 2002.
3. Voting Model for Ranking Web Pages. Maxim Lifantsev. In Peter Graham and Muthucumarar Maheswaran, editors, *Proceedings of the International Conference on Internet Computing (Las Vegas, Nevada, U.S.A.)*, CSREA Press, pages 143-148, Las Vegas, June 2000.
4. A Decision Procedure for Rough Set Equalities. Maxim Lifantsev and Anita Wasilewska. In Rajesh N. Dave and Thomas Sudkamp, editors, *Proceedings of the 18th International Conference of the North American Fuzzy Logic Information Processing Society - NAFIPS (New York, U.S.A.)*, IEEE, pages 786-790, New York, June 1999.
5. An LPO-based Termination Ordering for Higher-Order Terms without λ -abstraction. Maxim Lifantsev and Leo Bachmair. In Jim Grundy and Malcolm Newey, editors, *Proceedings of the 11th International Conference on Theorem Proving in Higher Order Logics (Canberra, Australia)*, volume 1479 of *Lecture Notes in Computer Science*, pages 277-293, Berlin, September 1998. Springer-Verlag.

Theses

1. Design, Implementation, and Evaluation of a Comprehensive Web Search Engine. (Ph.D. Thesis). Dept. of Computer Science, SUNY at Stony Brook, Stony Brook, NY, USA, Expected in May 2003. Advisor: Prof. Tzi-cker Chiueh
2. Term Rewriting Systems (Diploma Thesis). Dept. of Cybernetics, Moscow State Engineering-Physics Institute (Technical University), Moscow, Russia, February 1996. Advisor: Prof. Oleg N. Perminov.

Technical Reports

1. Rank Computation Methods for Web Documents. Maxim Lifantsev. Technical Report TR-76, ECSL, Dept. of Computer Science, SUNY at Stony Brook, Stony Brook, NY, USA, November 1999.

Conference Presentations

1. Voting Model for Ranking Web Pages. International Conference on Internet Computing - IC'00, Las Vegas, Nevada, U.S.A., June 2000.
2. A Decision Procedure for Rough Set Equalities. 18th International Conference of the North American Fuzzy Logic Information Processing Society - NAFIPS, New York, U.S.A., June 1999.
3. An LPO-based Termination Ordering for Higher-Order Terms without λ -abstraction. 11th International Conference on Theorem Proving in Higher Order Logics (TPHOL's98), Canberra, Australia, September 1998.

Professional Experience

1. Research Assistant Fall 1999 to date
Dept. of Computer Science, SUNY at Stony Brook, Stony Brook, NY, U.S.A.
Came up with new algorithms and techniques in particular for assigning various importance scores to web pages, ranking web pages for a user's query, finding similar and related documents, extraction of document key words, corpus-based phrase extraction and indexing. Obtained hands-on knowledge in several areas of modern web information retrieval. Gained substantial experience developing and extending complex large-scale object-oriented distributed system. Acquired skills evaluating and improving design and performance of a cluster-based web searching system.
Advisor: Prof. Tzi-cker Chiueh
2. Research Assistant Summer 1997
Dept. of Computer Science, SUNY at Stony Brook, Stony Brook, NY, U.S.A.
Worked on integration of object-oriented typing into an algebraic specification framework.
Advisor: Prof. Leo Bachmair
3. Teaching Assistant 1996 to 1999
Dept. of Computer Science, SUNY at Stony Brook, Stony Brook, NY, U.S.A.
Graded exams, homeworks, and projects; led recitations; held office hours; supervised undergraduate teaching assistants in more than six graduate- and undergraduate-level courses.

Main Software Projects

1. Yuntis: Design, implementation, evaluation, optimization, and evolution of a functional comprehensive and extensible web search engine with a set of novel features. SUNY at SB, since 2000. Over 170,000 lines of C++ code. Main developer.
2. OpenGRiD: Design, implementation, and application of an object-oriented modular multi-platform C++ library for building web servers, proxies, clients, crawlers, etc. (Redesign and extension of the code-base from the OGProxy project below.) SUNY at SB, since 1999. Main developer.
3. OGProxy: Design and implementation in C++ of a multi-platform HTTP(S) proxy that filters and augments HTTP headers and HTML documents and has a `select`-based non-blocking unithreaded architecture, SUNY at SB, 1999. Single developer.
4. Development and application of a set of software and hardware benchmarking projects in C and shell scripts for a Computer Architecture course, SUNY at SB, 1997. Member of a two-person team.
5. Implementation and evaluation of data-link and network protocols in C for a Computer Network Communication Protocols course, SUNY at SB, 1996. Member of a two-person team.
6. XProd: Development in Emacs-Lisp of extensions providing various customizations and productivity enhancements for XEmacs, a text editing environment, SUNY at SB, since 1996. Single developer.
7. Design and implementation in C++, debugging, optimization, and experiments with an evolving set of systems for rewriting and unifying completion with ordering constraints for higher-order equational systems without lambda-abstractions, MepHI, 1993 to 1996. Single developer.

8. Design and implementation in C++ of a compiler for an object-oriented subset of Eiffel for a Compiler Construction course, MEdPhI, 1993. Team leader of a four-person team.

Professional Activities

Participated in National Science Foundation's Information Technology Research Initiative grant proposal review panel, 2000.

Technology Skills

Programming languages:

Extensive experience: C++ (object-oriented design and development since 1993).

Substantial experience: Perl, Prolog, ML, Lisp, Java Script, Eiffel, Ada, Modula-2, Pascal, PDP assembly, shell scripts.

Others: Java, SQL, Oberon, Forth.

Technologies and Tools:

STL, HTTP (servers, clients, proxies), TCP/IP, autoconf, CVS, flex, bison, HTML, CGI, LaTeX, X-Windows, XEmacs.

Operating systems:

Linux, Sun OS, Free BSD: development, administration, and use since 1997.

MS Windows NT, 98, 95, MS DOS.

Natural languages:

Russian: native, English: fluent.

Honors

1. Best score in Ph.D. Qualifying Examinations, Dept. of Computer Science, SUNY at Stony Brook, 1997.
2. Graduate study fellowship, Dept. of Computer Science, University of Chicago, 1996 (declined).
3. (M.S.) Diploma with honors and first place in the annual contest of diploma projects, Dept. of Cybernetics, Moscow State Engineering-Physics Institute (Technical University), 1996.

Uncommon Hobbies

Snowboarding, rock climbing, badminton, tae kwon do, archery, bowling, volleyball, downhill skiing, roller skating.

References

1. Prof. Tzi-cker Chiueh, CS Dept., SUNY at Stony Brook, chiueh@cs.sunysb.edu, (631) 632-8449
2. Prof. David S. Warren, CS Dept., SUNY at Stony Brook, warren@cs.sunysb.edu, (631) 632-8454
3. Prof. Steven Skiena, CS Dept., SUNY at Stony Brook, skiena@cs.sunysb.edu, (631) 632-9026
4. Prof. Leo Bachmair, CS Dept., SUNY at Stony Brook, leo@cs.sunysb.edu, (631) 632-8452