Grant Ingersoll

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Software Experience

Extensive experience in Object-oriented design and development, **Java**, C/C++, **Lucene, Nutch,** HTML, JSP, JDBC, SQL, Hibernate, JavaScript, CSS, Perl, UNICODE, XML ANT, Maven, Subversion, Apache and Photoshop. System and network administration knowledge of Windows, UNIX, Linux, and Macintosh. Significant knowledge of database administration and design on Oracle, PostgreSQL and MySQL.

Professional Experience

Center for Natural Language Processing (CNLP), **Syracuse University**, Senior Software Engineer; Syracuse, NY (Oct. 2003 – Present). CNLP employment involves the design and implementation of innovative research ideas in Natural Language Processing (NLP). Primary research areas are in information retrieval, including question answering; information extraction, classification and sublanguage specialization.

- **Senior Software Engineer**
  - Lead developer on vertical search engine application designed to crawl and search public health gray literature (gray literature are documents often ignored by major search engines). Utilizing Nutch, we crawl and index public health content. Implementation includes managing distributed crawling process, collection management, filtering and searching.
  - Lead engineer on cross-language information retrieval (CLIR) system. Responsible for design and implementation of all aspects of system, including search engine integration, presentation, text processing and database design. The CLIR system is a web-deployable information retrieval system targeted at intelligence analysts requiring natural language search capabilities in multiple languages.
  - Lead Engineer on English language question answering system. Play major role in design and development of system, including tools used for specializing the system for a customer's domain and detecting user frustration automatically through query analysis. Responsible for system optimization through detailed analysis of code.
  - Designed prototype implementation of natural language front end for search engines to improve query results by creating advanced searches through query analysis using CNLP core technologies.
  - Designed and developed Information Retrieval libraries that allow CNLP to seamlessly plug in a variety of search engines for research and production, including Lucene, Google, Yahoo and MSN (the latter three via web services)
  - Design vertical search engine libraries for application in a variety of systems using Apache Nutch.
  - Participate in proposal and technical paper writing. Create and present training seminars for developers in the Center on interesting new topics

Apache Software Foundation (ASF), Apache Lucene Java Committer; (May 2006 – Present), Lucene PMC Member (May 2007 – Present)
Apache Lucene Java is the flagship open source search library. Originally, developed by Doug Cutting, Lucene enables developers to incorporate full text search into their applications. It is highly scalable, easy to use and behind a large number of enterprise-grade applications. As a volunteer committer, responsibilities include reviewing and applying user contributions, planning and developing next generation features, helping users with issues via the mailing lists and ensuring the integrity of the library as a whole. Additional roles include speaking, writing and giving tutorials on Lucene and Solr.

ProSoft Senior Software Engineer; E. Syracuse, NY (Mar. 2001-Oct. 2003)
ProSoft employment involves complete lifecycle development in a fast paced, customer-oriented environment. Additionally, a thorough understanding of configuration management and process management is required. Work at ProSoft involves:

- **Senior Software Engineer** (2001-Oct. 2003)

- Technical lead for development of enterprise application to be deployed in major government agency. Led team of 5 in development of major new system functionality. Worked with customer to troubleshoot deployment issues.
- Leader in the design and development of a data-driven application framework engine for the purpose of developing the next generation of process and relationship management software. Work involved extensive use of object-oriented principles and multiple layers of abstraction, as well as knowledge of the latest technologies, including Enterprise Java Beans, Application Servers, Java Server Pages (JSPs) and XML. Other project responsibilities include Oracle database design and administration.
- Assumed a leadership role on the first application built on ProSoft's new data-driven system. Played vital role in requirements gathering and implementation. The final application built is a web based configuration management system deployed at the enterprise level of the Federal Aviation Administration. Daily work included development of application using the data-driven architecture, maintenance and enhancement of the application framework, creation of JSPs (utilizing JavaScript, HTML and CSS) for display purposes, consultation with marketing and testing in order to meet customer needs.
- Technical leader on installation software for all ProSoft products. Responsibilities include requirements gathering, design specification and complete development of installation package using InstallShield Multiplatform.

MNIS-TextWise Labs, Senior Systems Engineer; Syracuse, NY (1999-2001)
TextWise employment requires complete, standards based development utilizing IEEE 12207 standards. Positions at TextWise include:

- **Senior Systems Engineer** (2000-March 2001)
  As technical development leader on CINDOR, a UNICODE compliant cross language information retrieval system, responsibilities include project management of software engineers and analysts in commercialization and maintenance efforts, design and development of key components in system, and specification of future releases. Management duties include working with business development, engineers, analysts, and researchers to develop the CINDOR system into a commercially viable system. Further development work includes optimization of key components such as Oracle and language processing modules. Responsibilities also include technical sales support and presentations.

- **Software Engineer** (1999-2000)
  Using object-oriented principles, designed and implemented key components of the CINDOR system. These systems include: a multi-threaded service for mapping user's natural language queries into meaningful database queries; NT based service for automatically translating documents and queries between languages; Java based client for working with CINDOR via both a command line and a web browser; data/error logging services. Further work included Oracle database administration, database design, writing custom document converters, engineering module for doing word sense disambiguation in prototype system.

The Ultra Corporation, Software Engineer/Analyst; Syracuse, NY (1995-1999)
Work at Ultra involves complete lifecycle development of computer applications. Specific positions include:

- **Lead Developer** (1996-1999)
  - Design and implementation of parallel discrete event simulations for military communication systems using Java and C++. An object-oriented model of global satellite communications systems was developed. Systems modeled include satellites, sensors, ground stations, communication links, and antennas. Further work included development, in Java, of a visualization package for interacting with the simulation during execution. Additionally, project development included extensive cooperation with other project members in building and testing of the simulation environment.
  - Design and implementation of a Clinical Management System for Syracuse University College of Nursing using Visual Basic and Access 97. The system consists of a relational database for

managing over 900 students, 30 faculty, courses and over 600 sponsoring agencies in an effort to coordinate and consolidate the College's clinical placement procedures into an integrated system. Specification and development of a Windows Client/Server videoconferencing application using Visual C++, Microsoft Foundation Classes, Video for Windows and TCP/IP.

- **Developer** (1995-1997)
  Using CGI and web programming techniques, built a Simulation-On-Demand prototype to provide high performance scientific simulations world wide via the Internet.
- **Systems Administrator** (1996 – 1999)
  Undertook building and maintenance of a heterogeneous computing network including a corporate Intranet utilizing mail, web, ftp, video conferencing and simulation services. The network is built on several NT 4.0 servers, UNIX, Linux and Windows 95 clients connected via Ethernet, fast Ethernet and ISDN.

  Further non-project related work includes technical paper writing, marketing and candidate interviewing.

Northeast Parallel Architectures Center, Research intern; Syracuse, NY (Summer 1995)
Participated in **NPAC**'s Research Experience for Undergraduates. Was trained in HTML, Perl and parallel programming along with the completion of a research project. For the project, the parallelization of computational electromagnetics software using message-passing libraries for the CM-5 was undertaken.

Army High Performance Computing Research Center, Intern; Minneapolis, MN (Summer 1994)
Work at the Summer Institute of the **AHPCRC** included classes in numerical analysis, linear algebra, UNIX, X windows. Was introduced to the architecture of The Thinking Machine Inc.'s massively parallel CM-5 supercomputer. Researched and implemented parallel algorithms using a C message passing library.

Publications

Diekema, A.R., Hannouche, J., Ingersoll, G., Oddy, R.N., Liddy, E.D. Analyst-Focused Arabic Information Retrieval (poster). In: Proceedings of the 2005 International Conference on Intelligence Analysis. McLean, VA, May 2-6, 2005.

Ingersoll, G.I, Yilmazel, O. Liddy, E.D. (2006) Finding Questions, submitted to 2007 IEEE 23rd International Conference on Data Engineering.

McCracken , N.J. , Diekema, A.R., Ingersoll, G., Harwell , S.C. , Allen, E.E., Yilmazel, O., Liddy, E.D. Modeling Reference Interviews as a Basis for Improving Automatic QA Systems. In Proceedings of HLT-NAACL 2006 Workshop on Interactive Question Answering, New York City , NY

Ingersoll, G. I. "Search smarter with Apache Solr, Part 1: Essential features and the Solr schema". IBM developerWorks, May 29, 2007, http://www.ibm.com/developerworks/java/library/j-solr1/ (accessed June 13, 2007)

Ingersoll, G. I. "Search smarter with Apache Solr, Part 1: Solr for the enterprise". IBM developerWorks, June 5, 2007, http://www.ibm.com/developerworks/java/library/j-solr2/ (accessed June 13, 2007)

Presentations

ApacheCon 2005, Presenter, "Advanced Lucene", covering the use of term vectors and span queries in Lucene. Presentation available at http://www.cnlp.org/apachecon2005

ApacheCon Europe 2007, Presenter, "Advanced Lucene", covering the use of term vectors, queries, and Lucene performance. Presentation available at http://cnlp.org/presentations/slides/AdvancedLuceneEU.pdf

Education

Syracuse University, Syracuse, NY (1996- 2000)
Master of Science in Computer Science: GPA: 3.75

Amherst College, Amherst, MA (1992-1996)
Earned B.A. as a double major in Computer Science and Mathematics, May 1996.
GPA in Computer Science: A-. GPA in Math: B+.

Activities

Amherst College Athletics: (1992-1996) Four-year member of men's varsity hockey team.
Other: Avid hiker, photographer, triathlete

References available upon request