

SIDDHARTH PATWARDHAN

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Education

University of Minnesota, Duluth, MN – UMD

Master of Science Major: **Computer Science** May 2003

GPA: **4.0 / 4.0**

University of Pune, Maharashtra Institute of Technology, India

Bachelor of Engineering Major: **Computer Science** May 2001

Graduated with a First Class.

Computer Skills:

Programming languages: C, C++, Perl, Java, Visual Basic, COBOL, x86 assembly

Operating systems: Unix (Linux, Solaris), Windows 95/98/NT/2000, DOS

Other Software Skills: MS Access, SQL, Web programming (HTML, Flash), LaTeX,
MS Word, MS PowerPoint

Master's Thesis

Currently, working on my Master's thesis, which is in the broad field of Natural Language Processing. More specifically, the research is to find unsupervised approaches to Word Sense Disambiguation. I design algorithms and implement them in Perl, to determine the sense of specific words in their context. The design of the algorithms is based on a measure of the semantic relatedness of words. I evaluate these algorithms to determine the accuracy of disambiguation.

Projects

WordNet semantic relatedness package

As part of my Master's thesis, implemented a Perl CPAN module to measure the semantic relatedness of words. The measures of semantic relatedness implemented are based on ideas proposed by researchers in the field of NLP. The module is distributed under GPL and is freely available for download at <http://www.d.umn.edu/~patw0006>.

Word Sense Disambiguation package

Worked on the development of a WordNet based word sense disambiguation package, which was based on semantic relatedness of word senses. Implementation was in Perl. The semantic relatedness modules were used.

8086 assembler in C

Made a simple 8086 assembler in the C language, as part of Systems Programming course for my bachelor's degree. Built the assembler from scratch, including a tokenizer, a parser, intermediate code generator and object code generator. Added a few code optimization features as well.

Database Management System in C

Made a Database Management System in C, as part of the DBMS course for my bachelor's degree. Required the creation of a Data Definition Language and Data Manipulation Language to allow the user to create and update databases in a format designed by me.

Inventory Control System in Visual Basic

Created a simple inventory control system, with an MS Access database as back-end and a GUI created in Visual Basic as front-end. This project was done as part of the Advanced Development Tool Laboratory course, during my undergraduate studies.

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Publications

Using Semantic Relatedness for Word Sense Disambiguation

Authored the paper, which has been selected for presentation and for publication in the proceedings of Conferences of Intelligent Text Processing and Computational Linguistics – CICLING in February 2003 at Mexico City.

CDF archival of large-scale ITS data for efficient archival, retrieval and portability

Co-authored the paper, which has been selected for presentation and publication by the Transportation Research Board for their annual meeting in January 2003. The paper is based on the summer research work done at TDRL.

Related Experience

Teaching Assistant August 2001– present

Computer Science Dept., UMD

Design and prepare course material for undergraduate courses and grade exams, labs and assignments. Also, conduct labs and lectures for the courses.

Research Assistant June 2002 – August 2002

Transportation Data Research Laboratory, UMD – TDRL

Worked with Minnesota Department of Transportation and Traffic Management Center to carry out research on analysis and processing of transportation data. Designed archive structure and wrote software to retrieve and archive data from data sensors. Currently, the principle focus of TDRL is to develop a large-scale centralized transportation data center (DC) that serves as a transportation information resource for Mn/DOT, University researchers, and other government agencies.

Generic PC Interface for Embedded Systems August 2000 – March 2001

Access Technologies – Divinet Research Labs, Pune, India.

Created a GUI-based Assembly-like Programming language that interacted with Embedded Systems connected to the serial port of a PC via programs written in the language. The software generated GUI front-ends that allowed the user to interact with different embedded systems. My task was to create the interpreter layer that interpreted the assembly code and also some parts of the GUI generator using Java Swing. The system was completely created in Java. Compiler Design principles were applied and a detailed knowledge of microprocessors and embedded systems was required. UML tools like Rational Rose were used for designing the project.

Relevant Coursework

Advanced Computational Logic	Systems Programming
Advanced Computer Architecture	Database Management Systems
Advanced Computer Graphics	Software Engineering
Computer Networks	Digital Signal Processing
Machine Learning and Data Mining	Operating Systems

Honors

Graduate School, University of Minnesota Duluth (May 2003) – **Most Outstanding Teaching Assistant** in the Computer Science Department.

National Council for Educational Research and Training, New Delhi, India – **National Talent Search Scholarship.**

References

Available upon request.