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Liren Chen

Objective

Research and/or software development position in the fields of intelligent agents, information retrieval and filtering, Internet-based research and development, computer network, natural language processing.

Qualifications

- **Experienced programmer** in Java, C++, C, Perl, Javascript, ASM(x86). Also familiar with FORTRAN, PASCAL, LISP, PROLOG, etc. The ability to master any programming language in a short time.
- **Research ability and experiences** in intelligent agents, information retrieval and filtering, machine learning & personalization, Internet-based development and natural language processing.
- **Computer science background:** data structure, computer graphics, computer network, database, operating system, AI, computer architecture, probability & statistics, pattern recognition, speech recognition, machine learning, algorithm design and analysis, software engineering, etc.
- **Natural Language Processing background:** algorithm for NLP, statistical language processing, lexicon and grammar, formal Language and Logic, machine translation, information retrieval, etc.

Experiences

- Jun.1998-Today: **Senior Software Engineer II** in Carnegie Group Inc., Pittsburgh
  Implemented the MMR algorithm in Java for information retrieval and text summarization which is part of the Scout/Tipster project.
  Implemented the Table/Graphics extraction prototype system in Java.
- Aug.1996-May.1998: **Research Assistant, Ph.D Candidate** in School of Computer Science, Carnegie Mellon University.
  1. **Principle designer and developer of WebMate system,** a personal agent for Web browsing and searching Web, which is part of RETSINA project in Intelligent Agent Group in CMU. The system was written in about 30000 lines of Java code and about 2000 lines of Javascript code. The focus of my research is to discover the information and build the task context for the agents by learning from environment or collaborating with each other.
  2. **Developed NewsMate system** that is a news reading agent to collect important & personal news in real time. It was written in 10000 lines of Java code.
     Developed Searchclues system that is an intelligent search guide or query expansion system. 7000 lines of Java code and 2000 lines of Javascript were

written. **Developed "Create Your Own Agent" system** which is an integrated agent for the web sites with similar functions. 6000 lines of Java code and 3000 lines of Javascript code were written. These three systems **originated from my own idea** and were developed in my spare time.

3. **Researched and implemented the Stock Ontology** using LOOM reasoning system. Programmed in Perl and LISP.
4. **Proposed and realized the Trigger Pair Model** for query refinement. Programmed in Perl and C++.
5. **Researched and did Experiments on using Language Model** to learn user's profile and classify texts. Programmed in Perl and C++.

- Sept.1994-July.1996: **Research Assistant, Master student** in Department of Computer Science & Technology, Tsinghua University
  - ❖ **Researched and implemented the Example-based Japanese-to-Chinese Machine Translation system.** The prototype system was written in 20000 lines of C++ and C code. This was also the topic of the thesis for my Master degree and was awarded as the excellent research work.
- June.1994-Sept.1994: **Intern** in the Phoenix Information Corporation.
  - ❖ **Compared and implemented most of the compression algorithms** for TCP/IP based network communication using C++. This was the part of the Airline Ticket and Hotel Reservation System.
- Sept.1993-June.1994: **Project Manager, Master student** in Department of Computer Science & Technology, Tsinghua University
  - ❖ **Project Manager of developing the Automatic Chinese Phoneme-to-Character Conversion Expert System.** This is an advanced research topic in Chinese language processing and was funded by 863 High-Tech Committee in China and the Academic Institute in Taiwan.
- June.1993-Sept.1993: **Intern** in the Fangxun Information System Company
  - ❖ **Programmed the telephone message-box system** in C++, C, and ASM(x86). Now the system is widely used as the voice email service.
- Sept.1988-June.1993: **Undergraduate Student** in Department of Computer Science & Technology, Tsinghua University
  1. **Researched and implemented the Japanese Text Segmentation Algorithm.** This was also the topic of the thesis for my Bachelor degree.
  2. **Designed and implemented an on-line handwriting recognition system.**
  3. **Took part in the Chinese Corpus Processing Project** funded by Chinese National Science Foundation. Lots of experiences on Natural Language Processing were accumulated in this period.

4. **Developed the virus immunization card** using ASM(x86).
5. **Developed the multi-lingual processing card** using ASM(x86).

Education

- **Carnegie Mellon University:** School of Computer Science, Ph.D Candidate: Jan.1998-
- **Carnegie Mellon University:** School of Computer Science, M.S. of Computer Science: Sept.1996-Dec.1997
- **Tsinghua University:** Department of Computer Science & Technology (P.R.China), M.S. of Computer Science: Sept.1993-July.1996
- **Tsinghua University:** Department of Computer Science & Technology (P.R.China), B.E. of Computer Science: Sept.1988-June.1993

Publications

- **Recursive Query Rewriting Using Program Transformation,** accepted by International workshops on Logic-Based Program Synthesis and Transformation, Manchester, United Kingdom, June 1998
- **WebMate: a Personal Agent for WWW Browsing and Searching,** accepted by The Second International Conference on Autonomous Agents (Agents'98)
- **Design and Realization of the EBMT System,** Singapore Oriental Language Processing Conference, 1996
- **Determining the Degree of Similarity between Sentences in the Example-based Approach to Japanese-to-Chinese Machine Translation,** JSCL-1995
- **Design and Realization of an On-line Handwriting Recognition System,** Chinese Information, 1992.6

Prototype Systems

- **WebMate:** http://www.cs.cmu.edu/~softagents/webmate
- **NewsMate:** http://www.cs.cmu.edu/~lchen/newsmate
- **Search clues System:** http://aristides.cimds.ri.cmu.edu:8001/searchclues
- **Create Your Own Agents:** http://aristides.cimds.ri.cmu.edu:8001/createagents

Hobbies

- **Invention and Innovation**
- Surfing Web