Deepak Jindal
jindal@cs.wisc.edu

1210 W. Dayton, #6363
Madison, WI 53706
Ph: 608-262-4838(O)

1932 University Ave,#104
Madison, WI 53705
Ph: 608-231-0305(H)

Objective

Seeking full time employment starting Jan 2001. **Visa status** : F1

Education

MS(Aug 1999 - Dec 2000)
Computer Science, University of Wisconsin, Madison.
Advisor: Prof. Mark D. Hill.
GPA: 4.0

BS (Aug 1995 - May 1999)
Computer Science, Indian Institute of Technology(IIT), Bombay, India.
Advisor: Prof. D. M. Dhamdhere
GPA : 3.8

Fields of Interest:

I am interested in systems and performance. In particular I am interested in the fields of Computer Architecture, Compilers, Database Management Systems and Java.

Academic Honors

- I was ranked **6th** out of the 40 undergraduate students in my department on the basis of my CPI.
- I was ranked **24th** among approximately 100,000 examinees in JEE 1995, the Joint Entrance Examination for admission to the IITs.

Experience

- **Research Work**
  My research objective was to look at the performance of commercial parallel applications on multiprocessor systems and tuning such benchmarks for optimal performance.
- **Java I/O performance**
  Term project for the Fall 2000 Advanced Operating Systems (Prof. Remzi Arpaci-Dusseau). Evaluated Java I/O performance using simple benchmarks. Some performance improvements were made by changing the native implementation of I/O methods.
- **Real Options**
  Term project for the Fall 2000 Artifacts of Software Analysis (Prof. Somesh Jha). In this project I worked on the application of financial options analysis techniques to the field of Software Engineering. In particular we looked at Binomial and Black-Scholes models.
- **Summer Internship**
  Worked at Google as a summer intern (Summer'00). Worked on performance improvements in query execution.

- **Studying directory based cache coherence protocols in Multiprocessors**
  Term project for the Spring 2000 Advanced Architecture Course II (Prof. Mark D Hill). Implemented five different protocols (MSI, MOSI, MOESI, MSI with Upgrades, MOSI with Upgrades) using tools developed at Wisconsin. Simulated some benchmarks (apache-surge, ocean, barnes, altavista search) using full system simulation on Simics.

- **Query Containment in XML-QL**
  Term project for the Spring 2000 Advanced Database Management Systems Course (Prof. Jeffrey Naughton). Defined and Implemented query containment for the queries written in XML-QL. The queries were first converted to a Normal Form (which does not have nested queries). Query containment was defined on the Normal Form. Implementation was done in Java and subsequently integrated with Niagara (ongoing XML project at Wisconsin).

- **Simulating data cache prefetching techniques for Multimedia applications**
  Term project for the Fall 1999 Advanced Architecture Course (Prof. Mark D. Hill). Involved extensions to Simplescalar to evaluate different data prefetching techniques. Specifically we simulated Chen and Baer's data prefetching techniques and stream buffers on multimedia applications and a few SPEC benchmarks.

- **Compilation Issues in Java**
  Senior Thesis (1998-99) (Prof. D M Dhamdhere). Design and implementation of bytecode verifier for Java class files. This involved a thorough study of Java Virtual Machine's instruction set and the byte-code verification process. The final implementation was able to ensure type consistency by data flow analysis. All the code (approximately 5000 lines) was written in Java.

- **Readings on AT^2 lower bounds in VLSI models**
  Junior Thesis (1997) (Prof. Abhiram Ranade). In my Junior year I presented a Seminar on AT^2 Lower Bounds in VLSI Models. I studied AT^2 Lower Bounds for the problems of Sorting, FFT and String Matching. Particularly I studied two VLSI models, *viz*, Thompson's word-model based on Square Grids and Billardi and Preparata's bit-model based on Square Tesselations.

Relevant Courses

- **IIT Bombay (1995-99):** Parallel Algorithms, Algorithms, Advanced Compilers, Programming Languages.

- **UW Madison (Fall'99):** Introduction to Computer Networks, Advanced Computer Architecture I.

- **UW Madison (Spring'00):** Advanced Computer Architecture II, Topics in Database Management Systems.

- **UW Madison (Fall'00):** Advanced Operating Systems, Artifacts of Software Analysis, Computer System Modeling Fundamentals.

- **Relevant Course Projects:**
  - Writing a compiler for a subset of C using C, Lex and Yacc. (IIT,Bombay)
  - Readings on pointer aliasing in compiler optimization.(IIT,Bombay)
  - Design and Implementation of a reliable Multicast File Transfer Protocol using UDP as link level protocol. (UW-Madison)

Software Exposure

I am well versed with the following programming languages: **C++, C, Java** and **FORTRAN**. I am also quite comfortable with: **Assembly Language-8086, VHDL** and **COBOL**.

I have worked extensively on, and am conversant with the following platforms: DOS, UNIX, Linux and Macintosh, Windows NT 4.0, Windows 95.