

Bruce M. Jackson

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CAREER INTERESTS

Database Management Systems, Operating Systems, Computer networks

EDUCATION

University of Wisconsin-Madison, Madison, WI

Master of Science in Computer Science - expected May, 1999
Master of Science in Geology - July, 1996

University of Minnesota-Duluth, Duluth, Minnesota

Bachelor of Science in Hydrogeology - May, 1994
Bachelor of Arts in Chemistry - May, 1994

EXPERIENCE

Computer Sciences Department, UW-Madison

Research Assistant Developing a data dissemination system using the object relational DBMS, Paradise.
May 98 - present Components implemented include a *SmartPush* information dissemination server, *SmartPull* information receiver, and a CGI based web profile management client.

Teaching Assistant Taught undergraduate level Computer Science classes. Designed lab exercises. Held lab sessions.
Aug 97 - May 98 Prepared, administered, and graded exams and quizzes.

Department of Geology & Geophysics, UW-Madison

Research Assistant Mapping the Glacial Geology of Manitowoc Co., WI.
Aug 96 - Aug 97

Teaching Assistant Taught various introductory Geology courses. Prepared and gave lectures for discussion sections.
Aug 94 - Aug 96 Held lab sessions. Prepared, administered and graded exams, assignments and quizzes.

PROJECTS

Designed and implemented a query engine for executing queries over XML data sources. The engine input is an ASCII query plan. The output is a valid XML document including an inline DTD. Elements from XML data sources are pipelined in parallel through an operator tree. Query plans are written in a flexible query plan language that will support plan generation from some future XML query language (a plan generator for XML-QL is under development). Designed the query plan language and implemented the compiler for this language. Operators implemented include: Scan, Select, Join, Union, Rename, Project, and Construct.
(<http://www.cs.wisc.edu/~brucej/xmlqe.ps>)

Designed and implemented the transport and network layers of a network communication protocol stack. The transport layer offers a reliable, connection oriented service interface and uses credits to implement flow control. The virtual circuit based network layer is responsible for virtual circuit set-up, teardown, and dynamic re-routing of existing circuits affected by link/node failures. (<http://www.cs.wisc.edu/~brucej/networks.ps>)

Implemented various components of Minibase, a single user relational database prototype. Layers implemented include: Buffer Manager, Heap File Layer, External Sort Merge Operator, and B+ Tree Indexes

Implemented a compiler for the language CSX (Computer Science Experimental, a subset of C++ and JAVA). Components implemented include: Scanner, Parser, Typechecker, Symbol Table, and Code Generator. The target platform for this compiler was the Java Virtual Machine.

Designed and implemented a workload analyzer for comparing the performance of two scheduling algorithms. Components include: Workload Generator, Schedulers, Java Swing based GUI with node-time box plot graphs, and queue time histograms.

Implemented a UNIX style directory structure, command interpreter, and various schedulers for an Operating Systems course.

RELEVANT COURSES

CS 764: Advanced Database Management Systems
CS 564: Database Management Systems: Design and Implementation
CS 736: Advanced Operating Systems
CS 537: Operating Systems
CS 740: Advanced Computer Networks
CS 640: Computer Networks
CS 704: Principles of Programming Languages
CS 536: Programming Languages and Compilers
CS 367: Data Structures
CS 302: Algebraic Language Programming in C++

RELEVANT SKILLS

Languages - C/C++, SQL, JAVA/JAVASWING, PERL/CGI, XML, HTML
Operating Systems - UNIX, WINDOWS NT, WINDOWS 95, MACOS
Programming Tools - PURIFY, GDB, CVS/RCS, FLEX, YACC, JAVACUP, JASMINE, JLEX
General Personality: Self motivated, responsible, conscientious, creative, strong work ethic

HONORS

MS Thesis nominated by the UW-Geology department for the 1997 Midwestern Association of Graduate Schools Distinguished Master's Thesis Award.
Graduated cum laude from the College of Science and Engineering at UMD

INTERESTS

Backpacking, Skiing, Investment clubs, Reading

REFERENCES

Available upon request.