

Mark M. Morgan

- Objectives** To find exciting and challenging work architecting and developing software that pushes current technological boundaries and enhances usability via familiar abstractions and frameworks.
- Experience**
- Research Faculty** (UVa Grid Computing Group, 2003 – present)
Created OGRSH, a classic software interposition library designed to seamlessly integrate Grid resources with legacy applications and environments.
Architected and implemented Genesis II, a Standards based grid environment implemented in Java and using AXIS, Derby, and Jetty.
As co-chair of the OGSA-ByteIO working group, helped design and specify a new Grid standard called ByteIO.
Active participant in numerous OGF (Open Grid Forum) and OGSA (Open Grid Services Architecture) standards body working groups.
Co-designed and co-implemented on the .NET platform the first released rendering of the WSRF specification, a web services based framework for Grid middleware.
- Senior Software Engineer** (Avaki Corporation, 2000 – 2003)
Architected and wrote a JDBC implementation to enable seamless database access to multiple, securely federated, remote databases.
Led transition of the Legion system from an academic project at UVa to a commercial setting as the first technical employee of Avaki, a leading company in commercial Grid systems.
Architected and wrote an efficient, light-weight application server to enhance Avaki grid object performance and functionality above and beyond what was possible with standard J2EE solutions.
Designed and implemented performance modifications to existing Legion software including work on Legion object application servers and network messaging enhancements.
Managed efforts of multiple engineers in Grid and high performance distributed systems development and design.
- Mentat/Legion** (UVa Mentat/Legion Groups, 1994 – 2000)
Architected and implemented various components of Legion, a large-scale, high-performance distributed grid and meta-operating system.
Maintained and continued development on MPLC, a custom, parallel C++ compiler and was responsible for the design and development of numerous additional language features such as templates and namespaces.
Ported Legion, a high-performance distributed meta-operating system consisting of over 700,000 lines of C++ code written for Unix, to the Windows platform.
Architected and implemented a rendering of the MPI (Message Passing Interface) API on top of the Legion high-performance distributed computing system.
Designed and created a post-mortem, parallel debugger for Legion.
- Software Engineer** (Lockheed Martin Federal Systems, 1997)
Jointly developed software for naval submarine displays and interfaces.
- Undergraduate Research Student** (Los Alamos National Labs, 1996)
Designed and wrote an implementation of the MPI API on top of the Mentat high-performance system.
Architected and produced a parallel ray-tracer as part of a personal study and test of the MPI over Mentat implementation.
- Technician Assistant** (Naval Research Laboratory, 1990)
Jointly constructed and tested a high-density plasma “mirror” experiment to test the feasibility of using sheets of contained plasma in software radar systems.
Produced numerous AutoCAD designs for apparatus around the lab (in particular the Plasma Mirror and Electron Beam Gun experiments.).
- Teaching** **Instructor for Intro to Business Computing** (UVa, Spring 2004)

Experience

Designed and taught the curriculum for the University's "Introduction to Business Computing" class. Class material included all introductory level material for using the Java programming language including advanced topics such as Java Swing programming and exception handling.

Head TA for Adv. Software Development Methods (UVa, Spring 1998)

Led team of undergraduate and graduate teaching assistants in support of the Advanced Software Development Methods class as well as in the associated lab sections.

TA for Computer Architecture (UVa, Fall 1996)

TA for Software Development (UVa, Spring and Fall of 1995)

Publications

Morgan, M., Genesis II: Motivation, Architecture, and Experiences using Emerging Web and OGF Standards, CCGrid '07, 2007.

Lewis, M. J., Ferrari, A. J., Humphrey, M. A., Karpovich, J. F., Morgan, M. M., Natrajan, A., Nguyen-Tuong, A., Wasson, G. S., Grimshaw, A. S., Support for Extensibility and Site Autonomy in the Legion Grid System Object Model, J. of Par. and Dist. Computing, Vol. 63, pp. 525-538, 2003.

Grimshaw, A. S., Natrajan, A., Humphrey, M. A., Lewis, M. J., Nguyen-Tuong, A., Karpovich, J. F., Morgan, M. M., Ferrari, A. J., Grid Computing: Making the Global Infrastructure a Reality, eds. Fran Berman, Anthony J. G. Hey, Geoffrey C. Fox, John Wiley & Sons, pp. 265-298, March 2003, ISBN 0-470-85319-0.

Wasson, G., Beekwilder, N., Morgan, M. and Humphrey, H. 2004. OGSINET: OGSi-compliance on the .NET Framework. ccGrid '04.

Education

MS, Computer Science, UVa, May 1999. GPA: 3.6/4.0

BS, Computer Science, UVa, May 1997 with Distinction. GPA: 3.501/4.0

Computer Skills

20+ years experience writing software in over 15 languages including Java, PASCAL, C, C++, C#, Tcl/Tk, Perl, Haskell, Lisp, x86 assembly languages, and Basic.

Java, C, C++, and C# as well as tools such as ant, JUnit, NUnit, make, lex, yacc, antlr, cvs, svn, and gdb.

14+ years experience in high-performance computing and large scale distributed systems.

Web service technologies on both the Microsoft, and Unix platforms (ASP.NET and AXIS in particular).

Numerous Java technologies including J2EE Application Servers, JDBC, JMS, JNDI, JBoss, Tomcat and Apache.

Various database products including Microsoft MSSQL, Hypersonic, Apache Derby, and MySQL.

Various C++ APIs such as the Standard Template Library, Microsoft's MFC libraries, MPI, and OpenSSL.

Microsoft's .NET framework and the Microsoft WSE library.

Operating System experience includes all versions of Microsoft, most versions of Unix, Linux, and FreeBSD as well as a handful of larger mainframes and super-computers.

Some experience programming DirectX applications.

Honors

B.S. Computer Science Degree with Distinction

Intermediate Honors, University of Virginia, October 1995

IBM Thomas J. Watson academic Scholarship

Phi Eta Sigma

Dean's List

Bausch and Lomb Science Award

Interests

Software usability and frameworks, programming languages and compilers, computer architecture, computer graphics, grid computing, distributed operating systems, springboard diving, Tae Kwon Do, volleyball, and scuba diving.