

# SHANE HUBLER

## Award

2007 – Computation and Informatics in Biology and Medicine (**CIBM**) Predoctoral Traineeship.

## Education and Certifications

2007 - PhD student, Department of Mathematics, University of Wisconsin-Madison

Certified Software Development Professional (**CSDP**). 2005 – present. IEEE certification recognizing an attainment of advanced professional skills and experience. This certification is the first certification for programming created by an international professional organization and the first vendor-independent certification in software engineering. Mr. Hubler was the second individual in the state of Wisconsin to receive this certification.

University of Wisconsin-Madison, Extension, Continuing Education. 2002. Completed Advanced Data Modeling.

University of Wisconsin-Madison, Wisconsin, Continuing Medical Education. Completed Project Management Principles I. 2000.

Microsoft Certification Professional (**MCP**). 1999 – present.

Microsoft Certified Solutions Developer (**MCSD**). 1999 – present. Specialized in Visual Basic 6.0 and (later) SQL Server 2000

University of Wisconsin-Madison, Madison, Wisconsin, **MS Computer Science**, 1992.

**Complex Systems Summer School**, Santa Fe, New Mexico, Attended Summer, 1991.

University of Wisconsin-Madison, Madison, Wisconsin, **MA Mathematics**, 1990.

Colorado College, Colorado Springs, Colorado, **BA Mathematics**, 1986. Completed requirements for **Physics** major as well.

## Employment Experience

University of Wisconsin-Madison, Madison, Wisconsin, March 1999 – August 2006.

**Programmer/Analyst II and Database Specialist for Ophthalmology/Epidemiology.** This research group receives nearly all of its money from research grants. Mr. Hubler designed, developed, tested, and supported the databases used by the Eye Grading group for the Los Angeles Latino Eye Study (LALES), five databases for the Wisconsin Eye Study of Cardiovascular disease In Diabetes (WESCID), five databases for the Wisconsin Eye

Study in Diabetic Retinopathy (WESDR), five databases for the Beaver Dam Eye Study (BDES) and individual databases for over thirty other research projects. These systems all had complex data entry and reporting requirements. Most of the designs used the same generic interfaces, designed and implemented by Mr. Hubler. Mr. Hubler also developed several software development protocols and gave instructional seminars on Microsoft Access and programming practices.

**Programmer/Analyst and Database Specialist for International Student Services (ISS).** ISS assists all foreign students at the university with their visa documentation, organizes social events for foreign students, and provides a communication conduit between the community and the foreign students. Mr. Hubler performed an extensive requirements analysis on databases used by the group, created a development plan, and implemented the plan within an extremely limited time frame and budget (July 2000 – June 2001, 1 day a week).

Ross Computational Resources, Madison, Wisconsin, November 1998 – July 1999.

**Assistant Director of Research.** Ross Computational Resources (RCR) created advanced software solutions for the scientific, medical, and educational communities. Mr. Hubler wrote and coordinated SBIR grant proposals, helped design future products, assisted with business development, and performed programming tasks. More specifically, he produced a protocol for software design and an extensive protocol for cognitive task analysis. Developed for RCR's funded research through the U.S. Department of Education, the cognitive task analysis protocol is currently in use, allowing researchers to create testing mechanisms for brain-damaged individuals working on simple vocational tasks. Applying the results of this analysis, Mr. Hubler also created an application in Visual Basic 5.0 to simulate a mail-sorting task and to evaluate the user's performance on this task. To assist in RCR's contract reporting requirements, he created a small time-accounting application in Access and Excel.

Biospherical Instruments Inc., San Diego, California, June 1995 – November 1998.

**Programmer/Analyst.** Biospherical Instruments (BSI) is a company that builds instruments for measuring a range of light frequencies, particularly for ecological research. Mr. Hubler had the following responsibilities while working at BSI.

**Software Design.** Mr. Hubler designed Hydra, a set of software tools designed to run a large collection of instruments in a variety of applications. These ActiveX DLLs and controls were written in Visual Basic 6.0. The design was completed by rigorous and documented methodology, using Rational Rose extensively as both a design tool and to assist in accurate time assessments.

**Software Development.** Mr. Hubler designed REOS-nt, a data acquisition program for long-term remote site studies. This system is currently used by the Los Angeles Department of Water to monitor water quality in most of their reservoirs. This program was written in Visual Basic 4.0 and extensively uses Access databases. The data is collected from each site, processed by an Access database, and displayed as a report on the user's printers. This whole process, combining solutions in Windows NT, Visual Basic 4.0, Access, DOS batch files, is

completed automatically, producing reports every morning on the three network printers.

**Software Support.** Mr. Hubler improved several separate programs while with BSI. These improvements occurred in many forms of Basic and Visual Basic. In addition he designed and enhanced complex Access databases and Excel spreadsheets.

**Software Testing.** Mr. Hubler designed and applied specific and rigorous software testing procedures for several software packages created or supported by him.

**Scientific Support.** Mr. Hubler assisted the senior scientist with several tasks to improve the capabilities of instruments and analysis. This included detecting, analyzing, diagnosing, and solving data anomalies.

**Documentation.** Mr. Hubler co-authored five manuals in addition to over five hundred pages of software descriptions and diagrams. He also wrote and edited extensive testing protocols. In addition, he acted as editor for a major grant proposal.

**Customer Support.** Mr. Hubler was responsible for answering questions and finding solutions for customers. This usually took the form of electronic mail interaction but did include a large amount of discussion by telephone. Mr. Hubler responded quickly and followed up on each issue. He handled questions regarding company software, calibration file formats, and Windows NT.

RGI, Incorporated, San Diego, California, September 1993 - July 1994.

**Programmer/Analyst.** RGI is a government contractor specializing in personnel systems. Mr. Hubler performed three tasks while employed for RGI:

**CAT-ASVAB Intelligent Tutoring System (ITS).** The Computer-Assisted Testing form of the ASVAB is a standardized test given to Navy personnel. The ITS instructs the test administrators on the proper hardware setup and security precautions to conduct a CAT-ASVAB test session. Mr. Hubler performed quality control, recoding, and data analysis tasks on the ITS. During data analysis he also wrote programs that created SAS script files.

**ISAID System.** (Integrated Survey Analysis and Information Display system). Mr. Hubler worked with another Paradox database programmer to create a generic menu-driven system that allows the system builder to import a survey database and create a menu hierarchy to display various analyses. The database builder can then send a two-diskette package for even the largest databases to the end-user.

**FAA Test Design.** Mr. Hubler modified and enhanced computerized tests intended for use by the FAA to evaluate air traffic controllers in training. This includes the design of a general test driver, allowing test administrators to create their own specialized tests without the requirement of a programmer. Mr. Hubler also designed and implemented an encryption algorithm that is computationally difficult to break.

University of Wisconsin-Madison, Madison, Wisconsin.

January 1992 - June 1993.

**Project Assistant in Limnology.** Mr. Hubler was chair of the Programming and Computer Modeling Committee on the project to study over-land phosphorus loading into Lake Mendota. As part of his duties, Mr. Hubler wrote a computer program enabling the model. The main program analyzed data from a GIS database to allow prediction of phosphorus flow under a variety of land use scenarios. In addition he wrote several other programs to assist with data analysis. He also co-authored a paper on land-based phosphorus flow.

**Computer Technician in Limnology.** Mr. Hubler installed and maintained computer hardware and software at the Center for Limnology, University of Wisconsin-Madison. He was also in charge of an internal software audit and a Local Area Network. Hardware included IBM compatible machines and Macintosh computers.

August 1986 - June 1989.

**Mathematics Teaching Assistant.** Mr. Hubler ran discussion sections on introductory mathematics. The material varied from an introductory course in high school algebra through third semester calculus.

Appleton Mills, Appleton, Wisconsin, June 1987 - August 1987.

**Student Intern in Research.** Mr. Hubler enabled, enhanced, and documented a system including three computers that performed quality control on felt looms.

Colorado College, Colorado Springs, Colorado.

August 1983 - May 1986.

**Computer Monitor.** Mr. Hubler assisted introductory computer students and Word-Perfect users. He also helped maintain the hardware, Texas Instruments Professional Computers and printers.

April 1984 and May 1985 - September 1985

**Computer Research Assistant in Geology.** Mr. Hubler installed computer equipment, created statistical analysis packages, and created a contour map program. He also wrote documentation for the use of the new packages.

University of Arizona, Tucson, Arizona.      June 1984 - September 1984.

**Lab Assistant in Physics.** Mr. Hubler produced a variation of the Fast Fourier Transform in FORTRAN capable of handling large arrays of data. The Prime computer used on the project was incapable of analyzing the two million data points

simultaneously by the traditional method, while Mr. Hubler's algorithm was capable of analyzing virtually any size data set efficiently.

## Professional Affiliations

American Mathematical Society (AMS), 1985 – 2001, 2006 – Present.

Full member of Institute of Electrical and Electronics Engineers (IEEE), 1998 – Present.  
Full member since 2004.

University of Wisconsin Access Users Group, Leader, 1999 – Present.

University of Wisconsin Data Modeling Group, Leader, 2003 – 2006.

American Association for Artificial Intelligence (AAAI), 1999 – Present.

## Computer Skills

**Languages:** C, LISP, Prolog, Assembly, FORTRAN, Basic (most versions), Visual Basic (all versions)

**Software:** Microsoft Office, MS Project, Visio, Access, Paradox, Excel, Lotus 1-2-3, Quatro Pro, SQL Server (7,2000, 2005), WordPerfect, Word, Power Point, Outlook

**Operating Systems:** UNIX, HP DOS, MS-DOS (2-6), Windows (all versions)

## Additional Skills and Experience

- .NET development
- Test Driven Development
- SQL development
- COM development
- ActiveX development (controls and DLLs)
- Object Oriented programming
- Acquaintance with SQL Server, ASP, DCOM, and COM+
- Design and implementation of development process
- Technical writing and editing
- Technology tutoring
- Creative problem solving
- Committee leadership
- Technical leadership

## Publications and Presentations

Presentations to University of Wisconsin Access Users Group (1999 – present): Converting Access to SQL Server, Data Patterns – Top 10 Patterns, Development Process (I and II), Error Handling, Generic Audit System, Management Issues, Overview of Data Modeling, Relational Databases (I and II), Test-Driven Development, and Validation Rules.

Presentations to University of Wisconsin Data Modeling Group (2004 – present): Combining Databases-A Case Study, Extensions of the Aggregate Pattern, General Purpose Database (I and II), and Generic Audit System.

White, B.N., Morrow, J.H., Chimienti, M., Carlsen, C., Hubler, S.L. (1997). Advances in REOS Reservoir Monitoring Technology. Presentation at American Society for Limnology and Oceanography national meeting.

Soranno, P.A., S.L. Hubler, S.R. Carpenter and R.C. Lathrop. (1996) Phosphorus loads to surface waters: A simple model to account for spatial pattern of land use. *Ecological Applications*, 6(3), 1996, pp. 865-878.

Soranno, P., Hubler, S., & Carpenter, S. (1993). A phosphorus loading model for Lake Mendota. Paper presented at the National Meeting of the Ecological Society of America, Madison, WI.

Hubler, S., & Veretnik, S. (1992). Plant Resource Allocation Model. Poster presented at Artificial Life III, Santa Fe, New Mexico.

Hubler, S. (1986). Finite, single sum form for Bernoulli numbers. Presented at Mountain Section of Mathematical Association of America (MAA), Grand Junction, Colorado.

Hubler, S. (1985). Recursion relations of Bernoulli numbers. Presented at Mountain Section of Mathematical Association of America (MAA), Boulder, CO.

Hubler, S. (1985). Revised Fast Fourier Transforms. Presented at Mountain Section of Mathematical Association of America (MAA), Boulder, CO.

Cohen, A., Ferguson, D., Gram, P., Hubler, S., & Sims, K. (1984). The distribution of coarse-grained sediments in modern Lake Turkana. Geological Society of London Sedimentation of African Rift System. Special Publication No. 25.

Cohen, A., Ferguson, D., Gram, P., Hubler, S., & Sims, K. (1984). The distribution of coarse-grained sediments in modern Lake Turkana. Paper presented at the Meeting of the Geological Society of London Sedimentation of African Rift System, London, England.

Hubler, S. (1984). Sums of polynomials. Presented at Mountain Section of Mathematical Association of America (MAA), Denver, Colorado.

Hubler, S. (1983). Four-Dimensional Cubes. Presented at the Undergraduate Conference in Mathematics, Stillwater, Oklahoma.