

CURRICULUM VITA

William A. Shay

Business Address

Information and Computing Sciences
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Statement of Interests

My formal education was in Mathematics, specifically Numerical Analysis. I spent most of my professional career as a faculty member in computer science and responsibilities included teaching, scholarship, and university service. I have since retired from my full-time faculty position. Current and future interests are to seek teaching opportunities in Mathematics and/or Computer Science.

Education

B.A. in Mathematics, St Mary's College, Winona, MN 1971.
M.A. in Mathematics, University of Wisconsin-Milwaukee, 1973.
Ph.D. in Mathematics, University of Wisconsin-Milwaukee, 1978.

Faculty Positions

Professor Emeritus, Information & Computing Sciences, University of Wisconsin, Green Bay, 2010-present
Professor, Information & Computing Sciences, University of Wisconsin, Green Bay, 1996 - 2010.
Associate Professor, Information & Computing Sciences, University of Wisconsin-Green Bay, 1984 - 1996.
Assistant Professor, Natural and Applied Sciences, University of Wisconsin-Green Bay, 1979 - 1984.
Lecturer, Mathematics Department, University of Wisconsin-Milwaukee, Fall semester 1978.
Teaching Assistant, Research Assistant, Fellow, Mathematics and Energetics departments, University of Wisconsin-Milwaukee, 1971 - 1978.

Service Leadership Positions

Unit Chair, Information and Computing Sciences, 2006-2010
Program Chair (Computer Science), University of Wisconsin, Green Bay, 1996 – 2006; Interim chair (spring 2008).
Chair, Committee of Six, 1998 - 1999.
Chair, Personnel Council, University of Wisconsin, Green Bay, 1996-1997.
Chair, Committee on Committees and Nominations, University of Wisconsin, Green Bay, 1996-1997.
Program Chair (Mathematics-included computer science as a track), University of Wisconsin-Green Bay, 1986 - 1990.
Chair, Computer Advisory Committee, University of Wisconsin-Green Bay, 1985-1990.

Award

Won the university's founders association award for excellence in teaching in 2001.

Publications

Various articles involving numerical solutions to partial differential equations describing fluid dynamics; articles related to computer science education; a textbook in Operating Systems; and a textbook in Data Communications and Computer Networks (see supplement to vita)

Reference

Names furnished upon request

SUPPLEMENT TO VITA

TEACHING

Statement

It's what I enjoy and I've been doing it for 40 years.

I was hired at UWGB in 1979 with a doctorate degree in mathematics for the purpose of developing some core courses for a computer science program. At this time it was common to hire mathematicians to develop emerging computer science programs. Our program has grown and evolved considerably since that time. Also, with the help of several dedicated faculty and feedback provided by several formal assessment procedures we have maintained a dynamic program that has produced many successful students. A full description of the program is at www.uwgb.edu/compsci.

Computer science courses are often mistaken for programming courses. In reality, they require much more than learning and mastering a programming language. The heart of software design is not the language, but the ability to define a problem, analyze various components, and project and evaluate potential solutions, all of which are subject to limitations and constraints inherent in a given computer. It is also the ability to use a language effectively and appropriately. Towards this end design and clarity, as well as functionality, are factors in a student's grade.

Of course, not every course I taught is geared toward designing application software. Courses such as Operating Systems, Computer Organization, and Computer Networks deal with theory behind the operation of computers and networks. My mathematics background helped me to provide instruction in areas such as data encryption, error detection/correction, compression, state diagrams, and a wide variety of topics in scientific programming. Such courses are important if a student has aspirations of graduate work. They are also important (although less obviously so) for students more career oriented. As stated previously, all software is subject to constraints and limitations of computers. I believe that having a firm understanding of theoretical principles is an essential ingredient to teaching good software design.

Courses Taught During my Career

- COMP SCI 241 Discrete Mathematics I
- COMP SCI 256 Software Design I
- COMP SCI 257 Introduction to Computer Science (now called Software Design II)
- COMP SCI 270 C and Linux
- COMP SCI 350 Scientific Computing
- COMP SCI 351 Data Structures
- COMP SCI 353 Computer Organization
- COMP SCI 358 Data Communications and Computer Networks
- COMP SCI 370 Linux Systems Programming
- COMP SCI 371 Advanced Object Design Using C++
- COMP SCI 451 Database Managements Systems
- COMP SCI 452 Operating Systems
- Various other courses in programming languages such as FORTRAN, BASIC, and COBOL

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Publications

Shay, W. A., "Time Division Multiplexing", The Handbook of Computer Networks, Vol. 1, pp. 568-578, J. Wiley & Sons, Hoboken NJ, 2008.

Shay, W. A., Understanding Data Communications and Networks, 3rd edition, Boston, MA: Course Technologies, 2004.

Shay, W., "Standards and Protocols in Data Communications", Encyclopedia of Information Systems, Vol. 4, pp. 205-226, Academic Press, San Diego, 2002.

Shay, W., "A Multiplatform/Multilanguage Client/Server Project", Proceedings of the 33rd ACM SIGCSE Technical Symposium on Computer Science Education, pp. 401-405, 2002

Starkey, Ron and W. Shay, "Graphics Augmentation of HyperChem using TCL Scripts", 221st ACS National Meeting, April 1- 5, 2001, San Diego, CA. Work on website [<http://www.uwgb.edu/shayw/tcl>].

Shay, W. A., Understanding Data Communications and Networks, 2nd edition, Pacific Grove, CA: Brooks/Cole, 1999.

Shay, W. A., "An Airport Simulation using Concurrency, Synchronization, and Shared Memory Constructs". Poster Session: 27th ACM SIGCSE Technical Symposium on Computer Science Education, 1996

Shay, W. A., Understanding Data Communications and Networks, Boston, MA: PWS-Kent, 1995.

Shay, W. A., Introduction to Operating Systems, New York, NY: HarperCollins, 1993.

Shay, W. A., "A Software Project for a Data Communications Course", Proceedings of the 22nd ACM SIGCSE Technical Symposium on Computer Science Education, pp. 15-20, Vol. 23, No. 1, 1991.

Schwengels, S., Schultz, D. H., Shay, W. A., "Second Order Finite Difference Solutions for the Flow Between Rotating Concentric Spheres", International J. for Numerical Methods in Fluids, pp. 1099-1111, Vol. 9, 1989.

Shay, W. A., "Second Order Approximations to Navier-Stokes Equations", Encyclopedia of Fluid Mechanics, Chapter 30, pp. 1183-1220, Vol 6, 1987.

Shay, W. A., "A Project For Operating Systems Simulation", Proceedings of the 17th ACM SIGCSE Technical Symposium on Computer Science Education, pp. 289-295, Vol. 18, No. 1, 1986.

Shay, W. A. and Schultz, D. H., "A Second-Order Approximation to Natural Convection for Large Rayleigh Numbers and Small Prandtl Numbers", International J. for Numerical Methods in Fluids, pp. 427-438, Vol. 5, 1985.

Shay, W. A., and Schultz, D. H., "Second Order Solutions for Flow Between Rotating Coaxial Disks at High Reynolds Numbers", Proceedings of the 12th Southeastern Conference On Theoretical and Applied Mechanics, Auburn University, pp. 227-232, 1984.

Shay, W. A. and Schultz, D. H., "A Second Order Approximation to Natural Convection in a Square Cavity", Proceedings of the 3rd International Conference on Numerical Methods in Laminar and Turbulent Flow, University of Washington-Seattle, pp. 764-774, 1983.

Shay, W. A., "A Course In Database Management Systems", ACM SIGCSE Bulletin, pp. 16-21, Vol. 14, No. 4, 1982.

Shay, W. A., "Development of a Second Order Approximation for the Navier-Stokes Equations", International J. of Computers & Fluids, pp. 279-298, Vol. 9, 1981.

Schultz, D. H., Shah, V. L. , Shay, W. A., Wang, P., "Diffusion of Oxygen and Carbon Dioxide Through Blood Flowing in a Channel", Med. & Biol. Eng. & Computing, pp. 98-105, Vol. 15, 1977.

Shay, W. A., Schultz, D. H., Shah, V. L., "Diffusion of Oxygen Through Blood Flowing in a porous Capillary Tube", Letters in Heat and Mass Transfer, pp. 237-246, Vol. 2, 1975.

Presentations

"A Multiplatform/Multilanguage Client/Server Project ", 33rd ACM SIGCSE Technical Symposium on Computer Science Education, 2002.

Starkey, Ron and W. Shay, "Graphics Augmentation of HyperChem using TCL Scripts", 221st ACS National Meeting, April 1- 5, 2001, San Diego, CA. Work on website [<http://www.uwgb.edu/shayw/tcl>].

"A Software Project for a Data Communications Course", 22nd ACM SIGCSE Technical Symposium on Computer Science Education, 1991.

"A Project For Operating Systems Simulation", 17th ACM SIGCSE Technical Symposium on Computer Science Education, 1986.

Invited to present paper titled "Second Order Solutions for Flow Between Rotating Coaxial Disks at High Reynolds Numbers" at the 12th Southeastern Conference On Theoretical and Applied Mechanics, Auburn University, 1984 (unable to attend for personal reasons).

"A Second Order Approximation to Natural Convection in a Square Cavity", 3rd International Conference on Numerical Methods in Laminar and Turbulent Flow, University of Washington-Seattle, 1983 - **Invited Presentation.**

Panel Discussion-"Database Courses With Realistic Student Projects", 14th ACM SIGCSE Technical Symposium on Computer Science Education, 1983 - **Invited Presentation.**

Presentations at Several MAA (Mathematics Association of America) Wisconsin Section meetings, 1981, 1985, and 1986.

Presentations at regional and local Mathematics and Computer Science seminars.

Non-Academic Interests

Tennis, racquetball, golf, biking.