

## Curriculum Vitae

HENRY MACKAY WALKER

September, 2022

<u>Business Address</u>	<u>Grinnell Mailing Address</u>	<u>Retirement Mailing Address</u>
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**Current Position** Samuel R. and Marie-Louise Rosenthal Professor of Natural Science and Mathematics, *2001-present*  
Professor of Computer Science, *2006-present*  
Chair, Department of Computer Science, *2006-2010, 2012-2014*  
Professor of Mathematics and Computer Science, *1990-2006*  
Chair, Department of Mathematics and Computer Science, *1990-1991*  
Professor of Mathematics, *1987-1990*  
Associate Professor of Mathematics *1980-1987*  
Chair, Department of Mathematics, *1981-1983*  
Assistant Professor of Mathematics, *1974-1980*  
Grinnell College, Grinnell, Iowa

**Senior Faculty Status (SFS) Positions** Visiting Professor of Computer Science  
University of the South, "Easter" Semester, 2017  
Williams College, Fall Semester, 2017  
University of Puget Sound, Spring Semester, 2020  
Class of 1959 Distinguished Scholar Chair in the Computer Science Department,  
Willamette University, Spring Semester, 2019

**Sabbatical Positions** Visiting Professor, School of Computing and Information Technology  
UNITEC Institute of Technology, Auckland, New Zealand, *April-May, 2003*  
Senior Lecturer, Department of Computer Sciences, *1988-1989, Fall 1995;*  
*Summers 1990, 1991, 1992, 1993, 1996* University of Texas at Austin  
Member of Technical Staff (MTS), *1980-1981*  
Bell Telephone Laboratories, Piscataway, New Jersey

**Other Job Background** Lecturer, Department of Mathematics, *1973-74*  
Massachusetts Institute of Technology, Cambridge, Mass.  
Computer Systems Analyst, Mobil Oil Corp., *Summer, 1969*  
Undergraduate Teaching Assistant for the Computer Laboratory,  
Williams College, *1968-69*  
Independent Study in Mathematics under N.S.F., Wesleyan U., *Summer, 1968*

**Education** UNIVERSITY OF IOWA, Iowa City, Iowa  
M.S. in Computer Science, *June, 1979*  
M.I.T., Cambridge, Mass., Ph.D. in Mathematics, *June, 1973*  
Thesis title: Equivariant CW Complexes and Cohomology  
Thesis advisor: Professor Franklin P. Peterson  
Fellowships: N.S.F. Graduate Fellowship, Woodrow Wilson Fellowship,  
N.S.F. Graduate Traineeship  
WILLIAMS COLLEGE, Williamstown, Mass., A.B., Magna cum Laude with  
Highest Honors in Mathematics, *June, 1969*

**Honors Received**      2013 Award for Lifetime Service to the Computer Science Education Community by the Special Interest Group on Computer Science Education of the Association for Computing Machinery (ACM)  
Named ACM "Distinguished Educator", July 31, 2009  
Named ACM "Senior Member", February 28, 2009.  
Sigma Xi, elected Associate Member, 1972; elected Full Member, 1973  
Phi Beta Kappa, elected 1967-1968  
"Distinguished Graduate Award," Concord-Carlisle (MA) High School, March, 1990  
Erastus C. Benedict First Prize in Mathematics, 1967

- Publications:** Democracy/student choice and the computing classroom  
Volume 9, Issue 3, September 2018, pages 26-30.
- ACM** Getting started with a program review  
Volume 9, Issue 2, June 2018, pages 26-28.
- Inroads,** Software correctness and usefulness in the classroom,  
Volume 8, Issue 1, March 2018, pages 28-32.
- Columns,** Lab-based courses with the 3 C's: content, collaboration, and communication  
Volume 8, Issue 4, December 2017, pages 26-29.
- Continued** Lab layouts, Volume 8, Issue 3, September 2017, pages 29-32.
- Connecting computing with other disciplines and the wider community,  
Volume 8, Issue 2, June 2017, pages 29-32.
- Basic do's and don'ts in the classroom: combating bias, presentations, and slides, Volume 8, Issue 1, March 2017, pages 12-15.
- Planning and organizing a course for the first time, Volume 7, Issue 4, December 2016, pages 12-17.
- Basic do's and don'ts in the classroom: general environmental and course suggestions, Volume 7, Issue 3, September 2016, pages 20-24.
- Using the hill-climbing algorithm with curricula and courses, Volume 7, Issue 2, June 2016, pages 36-38.
- Teacher as Coach, Mentor, Listener (Part 1?), Vol. 7, Issue 1, March 2016, pp. 18-21.
- Beyond the cliché, mathematical fluency, in the computing curriculum  
Vol. 6, Issue 4, December 2015, pp 24-26.
- Recovering from Disappointing Student Test Results, Vol. 6, Issue 3, September 2015, pp. 38-39.
- Why a required course on theory? Vol. 6, Issue 2, June 2015, pp. 24-26.
- Sorting algorithms: when the internet gives you lemons, organize a course festival, Vol. 6, Issue 1, March 2015, pp. 28-29.
- Structuring student work, Vol. 5, Issue 4, December 2014, pp. 30-33.
- Some strategies when teaching theory courses, Vol. 5, Issue 3, September 2014, pp. 32-34.
- College Courses of Varying Credit, Vol. 5, Issue 2, June 2014, pp. 26-28.
- Encouraging student preparation for class, Vol. 5, Issue 1, March 2014, pp. 24-25.
- Homework assignments and internet sources, Vol. 4, Issue 4, December 2014, pp. 16-17.
- 1000(binary) Thoughts for Developing and Using Examples, Vol. 4, Issue 3, September 2013, pp. 40-41.
- An Opportunity for Computing-Mathematics Dialog, Vol. 4, Issue 2, June 2013
- Exercise solutions: motivations, messages sent, and possible distribution,  
Vol. 4, Issue 1, March 2013, pp. 14-16.
- Developing a useful curricular Map, Vol. 3, Issue 4, December 2012, pp. 14-16.
- Course planning: the day-to-day schedule, Vol. 3, Issue 3, September 2012, pp. 22-24.
- How to prepare students for lifelong learning, Vol. 3, Issue 2, June 2012, pp. 10-11.
- Mid-course corrections, Vol. 3, Issue 1, March 2012, pp.20-21.
- Resolved: ban 'programming' from introductory computing courses,  
Vol. 2, Issue 4, December 2011, pp. 16-17.
- How to Challenge Students, Vol. 2, Issue 3, September 2011, .

- Publications:** When is a Computing Curriculum Bloated?, Vol. 2, Issue 2, June 2011, pp. 18-20.
- ACM Inroads** The role of textbooks, Vol. 2, Issue 1, March 2011, pp. 14-16.
- Columns, Continued** Prerequisites: shaping the computing curriculum, Vol. 1, Issue 4, December 2010, pp. 14-16.
- Computing teaching labs can communicate negative messages, Vol. 1, Issue 3, August 2010, pp. 13-14.
- The Role of Programming in Introductory Computing Courses, Vol. 1, No. 2, June 2010, pp. 12-15.
- Eight Principles of an Undergraduate Curriculum, Vol. 1, No. 1, March 2010, pp. 18-20.
- Wellness and the Classroom, Vol. 1, No. 1, March 2010, pp. 27-30.
- Publications:** Author of regular column on "Classroom Issues" for the *SIGCSE Bulletin*:
- SIGCSE Bulletin** Grading and the Allocation of Points, Vol. 41, No. 4, January 2010, pp. 14-16.
- Columns** Course Descriptions and Public Relations for Computer Science, Vol. 41, No. 2, June 2009, pp. 74-75.
- Classroom issues: staying connected with the big picture, Vol. 40, No. 4, December 2008, pp. 18-20.
- Advertising and Recruiting, Vol. 40, No. 2, June 2008, pp. 16-17.
- What image do CS1/CS2 present to our students?, Vol. 39, No. 4, December 2007, pp. 18-19.
- Reading and class work, Vol. 39, No. 2, June 2007, pp. 13-14.
- Thoughts on Student Feedback to Help Teaching, Vol. 38, No. 4, December 2006, pp. 13-14.
- Thoughts about Lecturing, Vol. 38, No. 2, June 2006, pp. 19-21.
- What Should Be in a Syllabus?, Vol. 37, No. 4, December 2005, 19-21.
- Mathematics and CS Topics in the CS Classroom, Vol. 37, No. 2, June 2005, 15-17.
- Academic Honesty in the Classroom, Vol. 36, No. 4, December 2004, 18-19.
- What Teachers Should, Can, and Cannot Do, Vol. 36, No. 2, June 2004, 20-21.
- Do Computer Games Have a Role in the Computing Classroom, Vol. 35, No. 4,

- Publications:** 1000 binary ways to help new, visiting, and adjunct faculty, *Journal of Computing Sciences in Colleges*, Volume 35, Issue 5, October 2019, pp. 101-108
- Articles:** Getting started with a program review, MAA Focus, January 2020, pp. 20-22
- Other** with John F. Dooley, The History of the SIGCSE Submission and Review Software: from Paper to Cloud, *50th ACM SIGCSE Technical symposium on computer science education*, February 27-March 2, 2019, Minneapolis, MN, February-March 2019, pp. 1074-1080.
- with Robert E. Beck, The SIGCSE symposium: a brief history, *ACM Inroads*, Volume 9, Issue 4, December 2018, pp. 31-39.
- Retention of students in introductory computing courses: curricular issues and approaches, *ACM Inroads*, Volume 8, Issue 4, December 2017, pp. 14-16.
- with the ACM Retention Committee, Retention of students in introductory computing courses: preliminary plans | ACM retention committee, Volume 8, Issue 4, December 2017, p. 12.
- Co-Editor *Special Section on the Role of Programming in a Non-Major, CS Course* in *ACM Inroads*, Vol. 6, Issue 1, March 2015
- Co-Editor, *SIGCSE Bulletin*, 2010-2012, including author of 12 articles with Marji Ivica, Sara Marku, Thu Nguyen, and Ruth Wu, Student-faculty collaboration in developing and testing infrastructure for a C-based course using robots, *Journal of Computing Sciences in Colleges*, Volume 32, Issue 1, October 2016, pages 57-64
- with Vasilisa Bashlovkina, Anita DeWitt, Anqing Liu, Nicolas Knoebber, A re ned C-based infrastructure and curriculum to support robots in introductory CS, *Journal of Computing Sciences in Colleges*, CCSC Central Plains, Vol. 30, Issue 5, May 2015, pp. 136-143.
- Priorities for the non-majors, CS course: programming may not make the cut, *ACM Inroads*, Vol. 6, Issue 1, March 2015, pp. 46-49.
- Computational thinking in a non-majors CS course requires a programming component, *ACM Inroads*, Vol. 6, Issue 1, March 2015, pp. 58-61.
- with Dilan Ustek, Erik Opavsky, and David Cowden, Course development through student-faculty collaboration: a case study, *19th ACM SIGCSE Conference on Innovation and Technology in Computer Science Education*, June 23-25, 2014, Uppsala, Sweden
- with Samuel Rebelsky, Using CS2013 for a department's curriculum review: a case study, *Journal of Computing Sciences in Colleges*, CCSC Midwest,
- with David Reed, Andrea Danyluk, Elizabeth K. Hawthorne, Mehran Sahami, Experiences mapping and revising curricula with CS2013, *45th ACM SIGCSE Technical symposium on computer science education*, March 5-8, 2014, Atlanta, GA





**Publications:** An Equivariant Serre Spectral Sequence, *A.M.S. Notices*,  
**Other** Vol. 21, No. 3, *April, 1974*, pp. A-405.  
**Articles,** An Equivariant Serre Spectral Sequence (Preprint)  
**Continued** Equivariant Classifying Spaces and Obstruction Theory, *A.M.S.*  
*Notices*, Vol. 20, No. 6, *October, 1973*, page A-609.  
Equivariant Cellular Homology and Cohomology and Classifying Spaces



**Teaching Experience**

Taught Tutorials on Computers; Intro. to BASIC Programming; Problem Solving and Computing (with LOGO); An Algorithmic and Social Overview of Computer Science, Intro. to Pascal Programming; Intro. to Computer Science (with Pascal); Fundamentals of Computer Science I and II; Computers in Society; Programming Language Concepts; Imperative Problem Solving and Data Structures; Representation, Storage Management, and C Programming; Software Design; Algorithms and Object-Oriented Design, Algorithms and Data Structures; Computer Architecture and Operating Systems; Parallel Algorithms; X Windows and C Programming; Theory of Computation; Operating Systems and Parallel Algorithms; Data Representation, Storage Management, and Formal Methods; Databases and Web Application Design; Algebra and Trigonometry; Calculus I/II; Calculus and Probability I/II; Linear Algebra; Differential Equations; Abstract Algebra I and II; Complex Analysis; Topology; Real Analysis; Problem-Solving;

Independent projects in Numerical Analysis, Compilers, Software Engineering, Data Bases, the Theory of Computation, Artificial Intelligence, Expert Systems, Neural Networks, Process Communication Using Sockets, Personal Desk Assistants (PDAs), Computer Networks, Neural Computation, User-centered Software Design, Drupal-based Web Development, Placement of Students in Computer Science, Mathematics, and Statistics, Using Robots in CSC 161, Bluetooth Communication in C at Grinnell College, *1974-1980, 1981-1988, 1989-2002, 2004-present*

Taught Computer Science II, Programming Language Paradigms, and Algorithms and Applications: Opportunities and Risks at the University of Puget Sound, Spring 2020

Taught Introduction to PHP Programming, MySQL Databases, and Web Development and Operating Systems and Currency at Willamette University, Spring 2019.

Taught Introduction to Computer Science, Tutorial on Algorithms and Applications: Opportunities and Risks at Williams College, Fall 2017.

Taught Introduction to Computer Science, Introduction to Modeling and Programming, at The University of the South, Spring 2017.

Lectured on Extreme Programming, Expert Systems, Neural Networks, Pedagogy for Teaching Research Methods, and Computer Literacy at UNITEC Institute of Technology, Auckland, New Zealand, *April-May, 2003*

Taught Data Structures (1988-89, Summer 1993, Fall 1995), Analysis of Programs (1988-1989 and Summer, 1990), Prog. Lang. (Summers, 1991, 1992, 1996), and Abstract Data Types (Fall, 1995) at the Univ. of Texas at Austin

**General**      Reviewer/external evaluator for faculty hiring, review, promotion, tenure  
**Consulting**      Annual requests yield 6-12 reports per year since 2005  
**Activities**      co-organizer and co-leader, with Douglas Baldwin, Amanda Holland-Minkley, and  
Grant Braught, SIGCSE Committee on Computing Education in Liberal Arts,  
Colleges: Phase 2{implementation, 2019-  
co-organizer and co-leader, with Douglas Baldwin, Andrea Lawrence, and Alyce  
Brady, SIGCSE Committee on Computing Education in Liberal Arts  
Colleges: Phase 1{foundations, 2016-2019  
Reviewer of introductory courses and overall curriculum, University of Central Asia

**Outside** Math/CS Dept., SUNY Purchase, Harrison, NY, *Spring 2023*  
**Reviewer/** CS Program, Lin'eld University, McMinnville, OR, *April 2022*  
**External** CIS Dept., Valparaiso University, Valparaiso, IN, *February 2020*  
**Evaluator**

**Professional Meetings**

- Regularly attend ACM/SIGCSE Technical Symposia on CS Education  
 Chair for Workshops and Tutorials, 1991 and 1994; for Panels, 1995  
 Program Chair for SIGCSE 2000  
 Symposium Chair for SIGCSE 2001  
 Database Administrator and Software Consultant for SIGCSE 2002-2014
- Regularly attend ACM/SIGCSE Conference on Innovation and Technology in  
 Computer Science Education (ITiCSE)  
 Chair for Tips and Techniques for ITiCSE 2003  
 Chair for First-timer Activities for ITiCSE 2004  
 Chair for Tutorials for ITiCSE 2005  
 Chair for Student Posters for ITiCSE 2006, ITiCSE 2007, ITiCSE 2008  
 Database Administrator and Software Consultant for ITiCSE 2005-2012
- Invited talk: Bias in algorithms and the misuse of Big Data sets  
 Iowa Undergraduate Computer Science Consortium, November 16, 2020.  
 The University of Puget Sound, February 3, 2020
- Co-coordinator/panelist: Special session on supporting co-curricular experiences,  
 51st ACM Technical Symposium on Computer Science Education,  
 March 2020, moved from in-person format to archived/virtual slides
- Invited talk: Lab-based Pedagogy w/Collaboration:  
 An Example of a Flipped Classroom  
 Computer Science Department, Univ. of Oregon, April 19, 2019  
 Faculty Colloquium, Willamette University, April 5, 2019
- co-Leader, with Kathleen Freeman Hennessy and Jennifer Parham-Mocello,  
 BoF Session on Co-curricular Activities in Computer Science Departments,  
 50th ACM Technical Symposium on Computer Science Education,  
 Minneapolis, MN, February 27-March 2, 2019, p. 1248.
- Panelist, with Melinda McDaniel, John Cigas, and Briana B. Morrison,  
 CS Education Then and Now: Recollections and Reactions,  
 50th ACM Technical Symposium on Computer Science Education,  
 Minneapolis, MN, February 27-March 2, 2019, pp. 181-182.
- co-Leader, MAA Minicourse on Leading a Successful Program Review,  
 MathFest 2018, Denver, CO, August 3-4, 2018.
- Speaker, Iowa Undergraduate Computer Science Consortium, April 24, 2018:  
 Approaches for Introductory Computer Science: Content and Pedagogy  
 Lab-based Pedagogy with Collaboration: An Example of a Flipped Classroom  
 Grinnell / U.Iowa 4+1 Program
- Organizer, Iowa Undergraduate Computer Science Consortium, March 28, 2015
- Co-leader, Special Session on "Curricular Assessment: Tips and Techniques",  
 SIGCSE 2015, *Proceedings of the 46th ACM Technical Symposium on Computer  
 Science Education*, March 2015, pp. 265-266.
- Co-leader, Tutorial on "Conducting Departmental Reviews and Serving  
 as a Reviewer", CCSC Midwest, September 19, 2014.
- Iowa Undergraduate Computer Science Consortium, March 29, 2014  
 Talk: Grinnell's Experience Using CS2013 as Part of a  
 Review of its CS Curriculum and Major
- Talk: Academic Implications for Google Glasses: Some Initial thoughts  
 Williams College Computer Science: 25<sup>th</sup> Anniversary Celebration:  
 Panel on CS Education

**Professional Meetings, Continued**

Iowa Undergraduate Computer Science Consortium, October 27, 2012  
 Organizer/convenor for meeting at Grinnell College  
 Talk: The Course Exemplar Concept  
 Talk: MAA Program Study Group on Comp. Sci. & Computational Sci.  
 Panel: Using undergraduates as mentors, lab assistants, graders, & peer tutors  
 Panelist, "Successful K-12 Outreach Strategies", SIGCSE 2011, Dallas, TX  
 Special Session Co-Leader, "Role and Value of Quantitative Instruments in Gauging Student Perspectives in Comp. Curr.", SIGCSE 2011, Dallas, TX  
 Presenter, "Lab-based Pedagogy with Collaboration: Some Possibilities for a Collaborative LACS Paper", Liberal Arts LACS Paper", Liberal Arts Computer Science Consortium, Kalamazoo College, July 22, 2011  
 Presenter, "A Lab-based Approach for Introductory Computing that Emphasizes Collaboration", Computer Science Education Research Conference (CSERC '11), Heerlen, the Netherlands, April 7, 2011  
 Panelist, "What Everyone Needs to Know about Computation", SIGCSE 2010, March 2010, Milwaukee, WI.  
 Invited Speaker, "Perspectives" for General Education and Computing', Rochester Institute of Technology, March 22, 2011  
 Participant, Compact for Faculty Diversity Institute, Tampa, FL, Oct. 28-31, 2010.  
 Session Leader, "Proven Strategies for Increasing Participation of High School Students in Computing", CCSC: Midwest, September 24, 2010.  
 Participant, Rebooting Computing Summit, Mountain View, CA, January 2009  
 Panelist, "Advanced Placement Computer Science: The Future of Tracking the First Year of Instruction", SIGCSE 2009, the SIGCSE Bulletin, Vol. 41, No. 1, March 2009.  
 CS2 Workshop for Computer Science Faculty, Denison University, June 16-17, 2008, funded by the Andrew Mellon Foundation.  
 Keynote Speaker, "CS2: Why, What, and How?"  
 Panelist, "Why Computer Games should be BANNED in the Undergraduate CS Curriculum"  
 Panelist, "A Lab-based Introduction to Computer Science that Emphasizes Collaboration"  
 Panelist, "Games: Good/Evil", a debate on the role of computer games in the undergrad. curr., SIGCSE 2008, the SIGCSE Bulletin, Vol. 40, No. 1, March 2008.  
 Invited Participant, Education Summit of the Computing Research Association, January 4-5, 2007, Atlanta, GA  
 Attendee, ACM/SIGCSE International Computing Education Research Workshop  
 ICER 2005: Oct. 1-2, 2005, University of Washington, Seattle, WA  
 ICER 2006: Sept. 2-10, 2006, University of Kent, Canterbury, UK  
 Invited Participant, Department Chairs Conference, Macalaster College, Oct. 2006(UK)]TJ -1u.3(Uni



- Professional Meetings, Continued**
- Invited Participant, Sloan Workshop on a CS Major Curriculum for Liberal Arts Colleges, Colgate University, *June, 1985*
  - Invited Participant, Panel on "A Model Curriculum for a Liberal Arts Degree in CS," Joint Math. Meetings, New Orleans, *January, 1986*
  - Invited address on "Developing and Teaching an Advanced Placement Computer Science Course", World Conf. on Comp. in Ed. Norfolk, VA, *July, 1985*
  - ACM Special Interest Group Conferences on Databases: *1982 and 1983*;  
Programming Languages: *1980*; Compiler Construction: *1979*
  - Regularly attend the Midwest Topology Conference, 1974-1978
  - Regularly attend Iowa Section, M.A.A. Meetings
  - Organizer of Session on Professional Ethics, *April 2007*
  - Paper on Teaching Introductory Programming, *April, 1980*
  - Attended Carleton Conference on Artificial Intelligence, *1984*
  - Attended Fifth Berkeley Workshop on Distributed Data Management and Computer Networks, *February, 1981*
  - Attended A.M.S.-M.A.A. National Mathematics Meetings, *January, 1977; January, 1980; January, 1986; January, 1987; January, 2001 - 2008*
  - Attended conference on Undergraduate Computer Science Curricula at the University of Iowa, *October, 1976*
  - Organized Topology Seminar at M.I.T., *Fall, 1972 and 1973*
- Professional Societies and Affiliations**
- Association for Computing Machinery (ACM)
  - Member, ACM Committee on Retention, 2017-2019
  - Special Interest Groups in:
    - Computer Science Education (SIGCSE)
    - Chair, 2001-2007; Immediate Past Chair, 2007-2010
    - Secretary/Treasurer, 1993-2001
    - Computers and Society (SIGCAS)
    - Software Engineering (SIGSOFT)
  - Iowa Software Association, 1997-2007
  - Iowa Undergraduate Computer Science Consortium, Founder/member: 1995-present
  - Mathematical Association of America (MAA)
    - Member, MAA Committee on Program Review (formerly MAA Committee on Program Review), 2017-2019.
    - Member, MAA Committee on the Profession, 2000-2002.
    - Member, MAA/ACM/IEEE Task Force on the Teaching of Computer Science within Mathematics Departments, *1986-1988*
  - Computer Professionals for Social Responsibility (CPSR)
  - Member, Liberal Arts Computer Science Consortium, *1985-present*
  - Hosted Consortium meeting, Summer 1991, Summer 2002, Summer 2013
  - Program Chair and Convener, 1991-1992, 2002-2003
  - Reviewer, Report of the ACM/IEEE Joint Curriculum Task Force, *1988-1991*

**Grants**

Furbush Faculty Scholar, Grinnell College, 2002-2003.

Author and co-PI for Preparing Future Faculty (PFF) Program grant to a consortium of 5 Iowa Colleges and Universities for the improved training of computer science graduate students for academic careers, 1999-2001.

Author and Program Director for \$19,394 grant from the Roy J. Carver Charitable Trust to develop and lead a summer workshop for high-school, computer-science teachers, June 1997

Author and Program Director for \$90,000 Noyce Foundation Grant to develop workshops for high-school, computer-science teachers to improve CS education in secondary schools; 252 registrants in 8 workshops, 1995-1997

Co-Author & Senior Investigator for NSF Grant CDA 9214874, *Integrating Object-Oriented Programming and Formal Methods into the Computer Science Curriculum*.

Co-Director, NSF Grant CSI-8750715 and Grants from the Culpeper and Keck Foundations to Grinnell College for *Using Powerful Computer Software Training*



- Activities to Support Secondary School Education**
- Member, Development Committee for Advanced Placement Computer Science A Examination, 2009-2013
  - Reader in Computer Science for the Advanced Placement (AP) Tests of the Education Testing Service (ETS), 1984-1995, 1999-present; Question Leader, 1986, 1992, 1995, 2009, 2013, 2016, 2020; Table Leader, 1985, 1987, 1988, 2005, 2006, 2007, 2008, 2010, 2014, 2015, 2017, 2018, 2019
  - Reader in Mathematics for the AP Tests of ETS, 1975-1977, 1979-1980, 1982
  - Member, AP Computer Science Development Committee, 2009-2012
  - Chair, AP Computer Science Course and Exam Review Commission, 2008-2009
  - College Board Consultant in Mathematics and Computer Science, 1983-present
  - Member of the Iowa Advanced Place Advisory Council, 1997-2004
  - SIGCSE Representative to the Ad Hoc Advisory Committee on Future Directions for Advanced Placement Computer Science, 1999-2000.
  - Leader of Advanced Placement Computer Science Workshop for high school teachers, organized by Ohio Society for Technology in Education, *June-July, 1998*
  - Developer and Leader of Summer Computing Workshop for High School Teachers, sponsored by the Roy J. Carver Charitable Trust, *June, 1997*
  - SIGCSE Representative to the Ad Hoc Advisory Committee for the transition of Advanced Placement Computer Science from Pascal to C++, 1995-1996.
  - Developer and Leader of Workshops on Computing for High School Teachers, sponsored by the Noyce Foundation:
    - General Workshops: Austin TX, *October 1994*; Des Moines IA, *March 1995*
    - Edinburg TX, Cedar Rapids IA, El Paso TX, *March 1996*;
    - Houston TX, *September 1996*;
    - Advanced Workshops: Ames IA, *April 1996*, Austin TX, *October 1996*
  - Developer and Leader of Workshop on Advanced Placement Computer Science for High School Teachers, sponsored by UT-Austin and Texas Instruments, Dallas, TX, *February, 1992*
- Programming Languages**
- Experience in programming in each of the following languages:  
 Ada, Algol, BASIC, C, C++, FORTRAN, Java, LISP, LOGO, ML, Modula-2, Pascal, Prolog, Scheme, UNIX Shell Language, various assembly and machine languages, JavaScript, VBScript, ASP, PHP, and related Web-based scripting languages  
 MIL and SDL (on Burroughs B1700), SNOBOL (SPITBOL on IBM 360)