

# Curriculum Vita

## Timothy V. Fossum

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### Education

August 1968      Doctor of Philosophy, Mathematics  
University of Oregon, Eugene, Oregon

June 1966        Master of Arts, Mathematics  
University of Oregon, Eugene, Oregon

June 1964        Bachelor of Arts  
St. Olaf College, Northfield, Minnesota

### Employment

2007–2008:      Program Director, Division of Undergraduate Education,  
National Science Foundation, Arlington, VA

2005–present:    Professor, Department of Computer Science  
SUNY College at Potsdam, Potsdam, New York

2004–2005:      Visiting Professor of Computer Science  
University of Wisconsin–Milwaukee, Milwaukee, Wisconsin

8/2003–12/2003: Interim Director, Computer and Network Services  
University of Wisconsin–Parkside

1979–2005:      Associate Professor, Professor of Computer Science  
University of Wisconsin–Parkside

1974–1979:      Assistant, Associate Professor of Mathematics  
University of Wisconsin–Parkside, Kenosha Wisconsin

1971–1972:      Visiting Assistant Professor of Mathematics  
University of Illinois, Urbana, Illinois

1968–1974:      Assistant Professor of Mathematics  
University of Utah, Salt Lake City, Utah

## Publications:

1. Fossum, T. V. and Curtis, C. W., "On centralizer rings and characters of representations of finite groups," *Math. Z.* **107** (1968), 402–406.
2. Fossum, T. V., "Projective representations and induced linear characters," *Proc. Amer. Math. Soc.* **24** (1970), 106–111.
3. Fossum, T. V., "Characters and centers of symmetric algebras," *J. of Algebra* **16** (1970), 4–13.
4. Fossum, T. V., "Characters and orthogonality in Frobenius algebras," *Pacific J. Math.* **36** (1971), 123–131.
5. Fossum, T. V., "Endomorphism rings of induced linear representations," *Illinois J. Math.* **16** 1972, 143–153.
6. Fossum, T. V., "Symmetric orders and separable algebras," *Trans. Amer. Math. Soc.* **180** 1973, 301–314.
7. Fossum, T. V., "The center of a simple algebra," *Pacific J. Math.* **50** 1974, 43–45.
8. Fossum, T. V., "Unimaximal orders," *Proc. Amer. Math. Soc.* **52** 1975, 99–102.
9. Fossum, T. V., and Gatterdam, R. W., *Calculus and the Computer: An Approach to Problem Solving*. Scott-Foresman (Chicago), 1980.
10. Fossum, T. V., and Lewis, G., "A mathematical model for trailer-truck jackknifing," *SIAM Review* **23** (1981), 95–99.
11. Fossum, T. V., *TUTOR*, a software system for development of on-line tutorials for PCs, marketed exclusively under the name *Teach 'N Tutor* by Zenith Data Systems, 1986.
12. Fossum, T. V., "PC-Xinu, Features and Installation," *Operating Systems Review*, **21** (July 1987), 30–33.
13. Comer, Douglas and Fossum, T. V., *Operating System Design, Volume I, the Xinu Approach, IBM PC Edition*, Prentice-Hall (Englewood Cliffs, N.J.), 1988.
14. Fossum, T., "Teaching computer networks in an undergraduate setting," *Proceedings, 23rd Small College Computing Symposium* (Hudson, WI), April 1990.
15. Fossum, T., "General MIDI device support for the PC-Xinu operating system," *Proceedings of the 29th Small College Computing Symposium* (St. Cloud, MN), April 1996, 139–147.
16. Fossum, T., "A real-time object-oriented petri net implementation based on Scheme," *International Workshop on Discrete Event Systems* (Edinburgh, Scotland), August 1996, 320–325.
17. Fossum, T., "An implementation of a recursive planning model," *Proceedings, IASTED International Conference on Artificial Intelligence and Soft Computing* (Banff, Canada), July-August 1997, 335–338.
18. Haller, S. M. and Fossum, T. V., "Retaining women in CS with accessible role models," *Proceedings of the 29th Annual SIGCSE Technical Symposium on Computer Science Education* (Atlanta, Georgia), February 1998, 73–76.

19. Fossum, T. V., Haller, S. M., Voyles, M. M., and Guttschow, G. L., "A gender-based study of elementary school children working with Robolab", presented at the AAAI Spring Symposium Workshop on Robotics and Education (Palo Alto, California), March 2001.
20. Voyles, M. M., Guttschow, G. L., Fossum, T. V., and Haller, S. M., "Gender differences in learning computer programming," presented at the National Association for Research in Science Teaching (NARST) Annual Meeting (St. Louis, Missouri), March 2001.
21. Haller, S. M., and Fossum, T. V., "The Association between Subject Matter and Discourse Segmentation," *Proceedings of the Fourteenth Annual Florida Artificial Intelligence Research Society Conference* (Key West, Florida), May 2001, 428–432.
22. Fossum, T. V., and Haller, S. M., "Using Protocols to Model Mixed Initiative Interaction," *Proceedings of the IASTED Conference on Artificial Intelligence and Soft Computing*, (Cancun, Mexico), May 2001, 318–323.
23. Fossum, T. V., and Haller, S. M., "Reinforcing Programming Language Concepts Through Implementation in a Concept-Based Course", *Proceedings of the Fifth Annual CCSC Northwestern Conference, Journal of Computing Sciences in Colleges* **19** no. 2 (Ellensburg, Washington), December 2003, 82–90.
24. Hansen, S. A., and Fossum, T. V., "Events Not Equal to GUIs", *Proceedings of the 35th Annual SIGCSE Technical Symposium on Computer Science Education* (Norfolk, Virginia), March 2004, 378–381.
25. Hansen, S. A., and Fossum, T. V., "CORBA in the Undergraduate Computer Science Curriculum", *Proceedings of the 37th Annual Midwest Instruction and Computing Symposium* (Morris, Minnesota), April 2004.
26. Fossum, T. V., "Implementing Nondeterministic Finite Automata in a Spreadsheet", *Proceedings of the Twentieth Annual CCSC Eastern Conference, Journal of Computing Sciences in Colleges* (Baltimore, Maryland), October 2004, 82–93.
27. Murphy, L., McCauley, R., Westbrook, S., Fossum, T., Haller, S., Morrison, B., Richards, B., Sanders K., and Zander, C., "A multi-institutional investigation of computer science seniors' knowledge of programming concepts", *Proceedings of the 36th Annual SIGCSE Technical Symposium on Computer Science Education* (St. Louis, Missouri), February 2005, 510–514.
28. Fossum, T., and Haller, S., "Measuring card sort orthogonality", *Expert Systems* **22**(3), July 2005, 139–146.
29. McCauley, R., Murphy, L., Westbrook, S., Haller, S., Zander, C., Fossum, T., Sanders, K., Morrison, B., Richards, B., and Anderson, R., "What do successful computer science students know? An integrative analysis using card-sort metrics and content analysis to evaluate graduating students' knowledge of programming concepts", *Expert Systems* **22**(3), July 2005, 147–159.
30. Fossum, T., and Haller, S., "A new quantitative assessment tool for computer science programs", *Proceedings of the Tenth Annual Conference on Innovation and Technology in Computer Science Education* (Lisbon, Portugal), 2005, 153–157.
31. Fossum, T., "Classes as first-class objects in an environment-passing interpreter", *Proceedings of the Tenth Annual Conference on Innovation and Technology in Computer Science Education* (Lisbon, Portugal), 2005, 261–265.

32. Murphy, L., Richards, B., McCauley, R., Morrison, B., Westbrook, S., and Fossum, T., "Women catch up: Gender differences in learning programming language concepts," *Proceedings of the 37th Annual SIGCSE Technical Symposium on Computer Science Education* (Houston, Texas), March 2006, 17–21.
33. Fossum, T., and Snow, J., "Experience writing Pyro device drivers for inexpensive robots", AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education (Palo Alto, CA) 2007.
34. Voyles, M, Haller, S., and Fossum, T., "Teacher responses to student gender differences", *Proceedings of the Twelfth Annual Conference on Innovation and Technology in Computer Science Education* (Dundee, Scotland), 2007, 226–230.
35. Voyles, M., Fossum, T., and Haller, S., "Teachers respond functionally to student gender differences in a technology course," *Journal of Research in Science Teaching* **24** (2008), 322–345.
36. Fossum, T., "Computer Algorithms Applied to Learning Assessment", in *Computers in Education, Volume 2, Chapter 2*, Sergei Abramovich ed., Nova Science Publishers, Inc. (2011), 17–26.
37. Fossum, T., "PLCC: A Programming Languages Compiler Compiler," *Proceedings of the 45th Annual SIGCSE Technical Symposium on Computer Science Education* (Atlanta, Georgia), March 2014, to appear.

#### **Grants received:**

1. GIGI 5-PACK grant awarded May 1982, consisting of five Digital Equipment Corporation GIGI graphics terminals with a combined value of approx. \$7,500.
2. Evans and Sutherland grant awarded 1982, consisting of an E&S PS-300 interactive computer graphics system having value exceeding \$90,000.
3. Digital Equipment Special Equipment Grant awarded 1983, consisting of a PDP-11/24 system with value \$36,945.
4. Urban Corridor Consortium grant awarded 1985, to implement an inter-institutional dialup mail system between UW-Parkside and UW-Milwaukee. The grant supported computing equipment and telephone installation charges amounting to \$3,000.
5. Intel Corporation Equipment Award granted 1985, to support software development for distributed real-time control. This grant provided four Intel 310 systems, Intel BITBUS hardware, and software. The total value of the grant was approximately \$10,000.
6. National Science Foundation Computer Science Network (CSNET) grant awarded 1986, providing \$9,750 for three years to support a CSNET dialup connection to UW-Parkside. The final year of this project (1988–89) provided for a leased-line Internet connection to UW-Milwaukee.
7. National Science Foundation Instrumentation and Laboratory Improvement (ILIP) grant awarded 1988, providing \$30,225 for two years to support a microcomputer networks/operating system laboratory.
8. National Science Foundation ILIP grant awarded 1992, providing \$78,942 for two years to support microcomputer systems and software for an integrated design laboratory.

9. National Science Foundation International Opportunities grant awarded 1995, providing \$7,039 for one year to support travel and living expenses for collaboration with researchers in South Africa and Australia.
10. National Science Foundation DUE/ILI grant awarded 1997, providing \$62,009 for three years to support the development of a Computer Science Laboratory designed to attract and retain women in computer science.
11. Johnson Wax Foundation education grant awarded 1997, providing \$5,000 to supplement the above DUE/ILI grant.
12. National Science Foundation DUE/CCLI grant awarded 2000 providing \$75,000 for two years to support the development of curricular materials in event-driven programming.
13. National Science Foundation Federal Cyber Service capacity building grant awarded 2003 providing \$189,000 for two years to support faculty and program development in cyber security.
14. National Science Foundation S-STEM scholarship grant awarded 2009 providing \$573,000 for four years for scholarship support of transfer students with Associates of Science degrees in CS from SUNY community colleges to pursue Bachelor's degree in CS at SUNY Potsdam.

### **Workshops**

1. The Life and Times of a Mouse Click  
Presented at SIGCSE 2001 and ITiCSE 2001 (with S. Hansen).
2. Testing and Debugging Event-Driven Systems  
Presented at SIGCSE 2002 (with S. Hansen).
3. Writing Successful NSF Grant Proposals  
Presented at SIGCSE 2008 (with S. Cooper) and at SIGCSE 2009 (with S. Cooper and V. Piotrowski).

### **Current Scholarly Interests**

Distributed operating systems, information security, measurement of knowledge acquisition, event-driven systems

### **Relevant Professional Experience**

*Academic Programs and Curriculum Committee*, SUNY Potsdam, June 2009–present.

*CCSCNE 2009*, Suny Plattsburgh conference co-Chair (with Lonnie Fairchild), April 24–25, 2009.

*Campus Academic Assessment Committee*, SUNY Potsdam, December 2008 to present.

*Learning Communities Steering Committee*, SUNY Potsdam, September 2008 to present.

*Consortium for Computing Sciences in Colleges, Northeast Section (CCSCNE) Board*, September 2007 to present.

*Faculty Senate Vice Chair*, SUNY Potsdam, September 2006 to August 2007.

*Arts and Sciences Curriculum Committee*, SUNY Potsdam, January 2006 to August 2007 and September 2008 to present.

*Computer Science Department Chair*, SUNY Potsdam, September 2005 to present.

*Computer Science Department Chair*, UW–Parkside, October 1998 to 2004.

*Computer Science and Engineering Department Chair*, UW–Parkside, July 1990 to June 1993.

*Applied Computer Science Discipline Coordinator*, UW–Parkside, July 1980 to June 1990 (excluding sabbatical leaves).

*UNIX system administrator*, 1988–present.

*Grant Evaluator*, National Science Foundation (various).

*Faculty Senate Chair*, UW–Parkside, August 1996 to 1999. (Also vice-chair of the UW–Parkside University Committee.)

*University Planning Council*, UW–Parkside, 1996–2003.

*University Planning Council Budget Planning Subcommittee*, UW–Parkside, 2003–2004.

*Committee on Academic Planning Chair*, UW–Parkside, September 2001 to August 2003.

*Consultant* with various business and industry in the Chicago–Milwaukee industrial corridor.

## **Awards**

*Senior Member*, Association for Computing Machinery, November 2009.

*Faculty Distinguished Service Award*, University of Wisconsin–Parkside, August 1997.

*Advisor of the Year Award*, University of Wisconsin–Parkside student organizations, 1992.

Member of *Sigma Xi*, the Scientific Research Society.