

## CURRICULUM VITAE

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### Education:

Ph.D. Northwestern University, 1970 - Computer Science

M.S. Northwestern University, 1968 - Computer Science

B.A. Wesleyan University, 1963 - Mathematics

### Professional Experience:

Bowdoin College (1988- ). Anne T. and Robert M. Bass Professor Emeritus

Founding Chair, Computer Science Department (1988-94, Fall 2000, 2002-04)

Ternopil Academy of National Economy, Ukraine, Fulbright Senior Scholar  
(Spring 2001)

University of Canterbury, Christchurch, New Zealand, Visiting Erskine Fellow  
(Summer 1999, Spring 2005)

ESIGELEC, Rouen, France, Visiting Lecturer (Spring 2006)

Brown University, Visiting Professor of Computer Science (Spring 1992)

Colgate University (1983-88). John D. and Catherine T. MacArthur Professor

Associate Dean of the Faculty (1986-88)

Chair, Computer Science Department (1983-86)

Georgetown University (1971-83). Assistant/Associate Professor

Chair, Computer Science Program (1976-83)

Director, Academic Computation Center (1976-83)

Boston University, Adjunct Professor, Overseas Program, Heidelberg,  
Germany (1982, 1984).

University of Missouri-Rolla (1970-1971). Assistant Professor of Computer Science

### Honors and Awards:

Association for Computing Machinery (ACM) SIGCSE Outstanding Contribution  
to Computer Science Education Award, 2001. The Anne T. and Robert M. Bass Chair, 1999- .  
Fulbright Lecturer: Ukraine (2001), Czechoslovakia (1993). Fulbright Senior Specialist, 2006- .  
ACM Outstanding Contribution Award, 1991. ACM Fellow, 1994- . ACM Distinguished  
Lecturer, 2006- . IEEE Computer Society Distinguished Service Award, 1992. Who's Who in  
America, 1988- . The John D. and Catherine T. MacArthur Chair in Computer Science, 1983-  
1988. New York Academy of Sciences (1975), Sigma Xi (1968).

### **Refereed Publications (since 1984):**

- Tucker, A., Editor in Chief, The Computing Handbook Set (3rd edition), CRC Press, 2014.  
Volume I: Computer Science and Software Engineering, with T. Gonzales and J. Diaz-Herrera (eds)  
Volume II: Information Systems and Information Technology, with H. Topi (ed)
- MacKellar, B., M. Sabin, and A Tucker, "Bridging the Academia-Industry Gap in Software Engineering: A Client-Oriented Open Source Software Projects Course," to appear in Liguu Yu (ed), Overcoming Challenges in Software Engineering Education, IGI Global, Hershey, PA, to appear in Spring 2014. view preprint at:  
<http://npfi.org/sites/default/files/MacKellarSabinTuckerBookchapterFinal.pdf>
- MacKellar, B., M. Sabin, and A. Tucker, "Scaling a Framework for Client-Driven Open Source Software Projects: A Report from Three Schools," Proceedings of CCSCNE 2013, Association for Computing Machinery, April, 2013.
- Morelli, R., T. de Lanerolle, and A. Tucker, "The Humanitarian Free and Open Source Software Project: Engaging Students in Service Learning through Building Software," Chapter 5 in Nejme, B. (ed) Service Learning in the Computer and Information Sciences, John Wiley, 2012.
- Tucker, A., R. Morelli, and T. de Lanerolle, "An HFOSS Service Learning Case Study: The Bowdoin-Ronald McDonald House Projects," Chapter 8 in Nejme, B. (ed) Service Learning in the Computer and Information Sciences, John Wiley, 2012.
- Tucker, A., R. Morelli, and C. de Silva, Software Development: an Open Source Approach, CRC Press (January, 2011), 385 pages.
- Tucker, A., Teaching client-driven software development. Proceedings of the ACM CCSC South Central Conference, Hammond, LA, April 24, 2009.
- Tucker, A., R. Morelli, and T. de Lanerolle, "The Humanitarian FOSS Project: Goals, Activities, and Outcomes" IEEE Global Humanitarian Technology Conference Proceedings, October 30-Nov 1, 2011 Seattle, Washington
- Morelli, R., A. Tucker, N. Danner, T. de Lanerolle, H. Ellis, O. Izmirli, D. Krizanc, and G. Parker, Revitalizing Computing Education through Free and Open Source Software for Humanity, Communications of the ACM 52, 8 (August 2009), 67-75.
- Tucker, A. and R. Noonan, Programming Languages 2e, McGraw-Hill, (2007), 600 pages.
- Tucker, A., Computer Science: the Discipline and Its Impact,"in Tucker, A. (ed.), Computer Science Handbook(2e), CRC Press, Boca Raton, FL (2004), Chapter 1.
- Tucker, A. and R. Noonan, "Event-Driven Programming,"in Tucker, A. (ed.), Computer Science Handbook(2e), CRC Press, Boca Raton, FL (2004), Chapter 95.
- Tucker, A. (Editor-in-Chief), Computer Science Handbook (2e), CRC Press, Boca Raton, FL (2004) 2688 pp.
- Tucker, A. "A New K-12 Computer Science Curriculum," Leading and Learning with Technology. ISTE, Eugene OR (April 2004).
- Tucker, A. (ed.), F. Deek, J. Jones, D. McCowan, C. Stephenson, A. Verno, A Model Curriculum for K-12 Computer Science. Association for Computing Machinery, New York (October 2003), 43 pages.
- Bruce, K., S. Drysdale, C. Kelemen, and A. Tucker, "Why Math?" Communications of the ACM 46:9, (September 2003), 41-44.
- Tucker, A. and B. Boehm, "On the Balance between Theory and Practice in Software Engineering Curricula," IEEE Software (September/October 2002), 28-31.
- Tucker, A., "Computer Science in the US: a 35-year Evolution," Fulbright Newsletter 7 (Spring 2002), Kiev, Ukraine, 6-10.
- Tucker, A. and R. Noonan, Programming Languages, McGraw-Hill, (2002), 411 pages.

- Tucker, A. and R. Noonan, "Integrating Formal Models into the Programming Languages Course" SIGCSE 2002 Proceedings, Northern Kentucky (March 2002), 346-350.
- Tucker, A., "Computing Curricula 2001 and IDAACS," IDAACS 2001 Proceedings, Foros, Ukraine (July 1-4, 2001), 15-19.
- Tucker, A., C. Kelemen, and K. Bruce, "Our Curriculum Has Become Math-Phobic!" SIGCSE 2001 Proceedings, Charlotte, NC, February 2001.
- Kelemen, C., A. Tucker, P. Henderson, K. Bruce, O. Astrachan, "Has Our Curriculum Become Math-Phobic?" Proceedings of ITiCSE 2000, Helsinki, July 11-13, 2000.
- National Research Council Committee on Information Technology Literacy (L. Snyder-Chair, A. Aho, M. Linn, A. Packer, A. Tucker, J. Ullman, and A. van Dam), *Being Fluent with Information Technology*, National Academy Press, Washington, DC (May 1999), 112 pages.
- Tucker, A., "Enrollment and Staffing in College Computer Science Programs: A 1996-2000 Growth Perspective," *Computer Science Education*9,1 (April 1999), 23-35.
- Tucker, A., K. Barker, A. Bernat, R. Cupper, C. Kelemen, R. Ungar, "Developing the Breadth First Curriculum: Results of a Three-Year Experiment," *Computer Science Education*8,1 (March 1998), 27-55.
- Tucker, A., "Gearing Up for the Ultimate Virtual Computer," *IEEE Potentials* 17,2 (April/May 1998), 4-7.
- Tucker, A. (Editor-in-Chief), *CRC Handbook of Computer Science and Engineering*, CRC Press, Boca Raton (1997), 2611 pages.
- Tucker, A. and P. Wegner, "Computer Science and Engineering: the Discipline and Its Impact," Chapter 1 in *CRC Handbook of Computer Science and Engineering*, CRC Press, Inc., Boca Raton, 1997.
- Tucker, M., S. Seluke, and A. Tucker, "The Beacon School/Community of Learners Project: A Science Education Partnership," *Science Scope*, Spring 1997.
- Tucker, A., "Strategic Directions in Computer Science Education," *ACM Computing Surveys*, December, 1996.
- Tucker, A. and P. Wegner (eds.) 50th anniversary issue of *ACM Computing Surveys*, Spring, 1996 (February, 1996).
- Tucker, A., "Emerging Themes in Computing Curricula for Science and Engineering," *Proc XV Brazilian Computer Conference*, 1995 (published keynote address).
- Tucker, A., A. Bernat, J. Bradley, R. Cupper, and G. Scragg, *Fundamentals of Computing I : Logic, Problem-solving, Programming, and Computers (2e)*, McGraw-Hill, 497 pages (1994); C++ edition (1995), Thai translation (1998).
- Tucker, A., R. Cupper, J. Bradley, R. Epstein, and C. Kelemen, *Fundamentals of Computing II : Abstraction, Data Structures, and Large Software Systems*, McGraw-Hill, 559 pages (1993); C++ edition (1995).
- Tucker, A. and P. Wegner, "New Directions in the Introductory Curriculum in Computer Science," *ACM Sigcse Proceedings* (March 1994).
- Epstein, R. and A. Tucker, "Introducing Object-Orientedness into a Breadth-First Introductory Curriculum," *Proceedings of OOPSLA 92* (October, 1992).
- Tucker, A. and D. Garnick, "A Breadth-first Introductory Curriculum in Computing," *Computer Science Education*, Ablex (Fall 1991).
- Tucker, A. and B. Barnes, "Flexible Design: A Summary of Computing Curricula 1991," *IEEE Computer* (November 1991).
- Tucker, A. and A. Turner, "Computing Curricula 1991: Summary of the Joint Curriculum Task Force Report," *Communications of the ACM* 34, 6 (June 1991).
- Tucker, A. and D. Garnick, "Recent Evolution of the Introductory Curriculum in Computing,"

- Education and Computing, Elsevier-North Holland (Spring 1991).
- Tucker, A. (ed), B. Barnes, R. Aiken, K. Barker, K. Bruce, J. Cain, S. Conry, G. Engel, R. Epstein, D. Lidtke, M. Mulder, J. Rogers, E. Spafford, A. Turner, *Computing Curricula 1991 : Report of the Joint Curriculum Task Force*, ACM Press and IEEE-CS Press, 154 pages (Spring 1991).
- Tucker, A., "Computers and Translation," *Methodologies in Humanities Computing*, University of Pennsylvania Press (1990).
- Denning, P. (chair), D. Comer, D. Gries, M. Mulder, A. Tucker, A. Turner, and P. Young, "Computing as a Discipline," Report of the ACM Task Force on the Core of Computer Science, *Communications of the ACM* 32,1(January 1989), 9-23; abridged and reprinted in *Computer* (February, 1989).
- Drysdale, R., H. Korth, and A. Tucker, "Computer Science in Liberal Arts Colleges," *Computer Science Education* 1,1 (October 1988).
- Tucker, A., "Current Strategies in Machine Translation Research and Development," in Nirenburg, S. (ed), *Machine Translation: Theoretical and Methodological Issues*, Cambridge University Press (1987), Chapter 2.
- Nirenburg, S., V. Raskin, and A. Tucker, "The Structure of Interlingua in TRANSLATOR," in Nirenburg, S. (ed), *Machine Translation: Theoretical and Methodological Issues*, Cambridge University Press (1987), Chapter 6.
- Tucker, A., *Computer Science: A Second Course with Modula-2*, McGraw-Hill Computer Science Series (1988), 401 pp.
- Tucker, A., "Computer Science Accreditation and the Curriculum: A Delicate Partnership," Proc Hawaii Int'l Conference on System Sciences, Kailua-Kona (January, 1988).
- Tucker, A., S. Nirenburg, and V. Raskin, "Discourse and Cohesion in Expository Text," Proc COLING 86, Bonn (August, 1986).
- Nirenburg, S., V. Raskin, and A. Tucker, "On Knowledge-based Machine Translation," Proc COLING 86, Bonn (August, 1986).
- Tucker, A. *Programming Languages*, 2nd ed. McGraw-Hill Computer Science Series (1986), 590 pp. Translated into French, *Les Langues de Programmation*, by B. Geoffrion and L. Richard (1988), 698 pp.
- Gibbs, N., and A. Tucker, "A Model Curriculum for a Liberal Arts Degree in Computer Science," *Communications of the ACM*, 29, 3 (March, 1986), 202-210.
- Nirenburg, S., V. Raskin and A. Tucker, "Design of Interlingua for TRANSLATOR," *Proceedings of Conference on Theoretical and Methodological Issues in Machine Translation*, Colgate University (1985), 245-265.
- Tucker, A. and S. Nirenburg, "Machine Translation: A Contemporary View," in M. Williams (ed.), *Annual Review of Information Science and Technology*, vol. 19 (1984), pp. 129-160.
- Tucker, A., "A Perspective on Machine Translation: Theory and Practice," *Communications of the ACM*, 27, 4 (April 1984), pp. 322-329.

#### **Grant-supported Activities (since 1984):**

- Community of Learners Network Project (co-PI), \$960K Network Infrastructure in Education, NSF, 1995-97.
- CRC Handbook Project, \$34K grant, CRC Press, Inc., 1994-96.
- Adding Breadth and Laboratories to the Introductory Curriculum in Computer Science [co-PI with Keith Barker (UConn) and A. J. Turner (Clemson)], \$450K Educational Infrastructure, NSF, 1991-95.
- Curriculum Development in Computer Science (co-PI with David Garnick), \$20K, Sloan

Foundation, 1989-91.  
Laboratory and Instructional Materials Development (co-PI with David Garnick), McGraw-Hill and Interleaf, 1989.  
The Scholar's Workbench Research Project, Bentley-Holden Fund (1985-1988); \$75K, Culpeper Foundation, 1986.  
Research in Machine Translation (with Sergei Nirenburg), \$125K, NSF, 1984-1986.  
Advanced Placement Computer Science Workshop (with Chris Nevison), \$25K, NSF, 1985.  
Computer Research Equipment, \$75K, PAR Technology, Inc., 1985.  
Computer Science Departmental Endowment, \$100K, Bentley-Holden Fund, 1985.  
ILI Computer Research Equipment (co-PI with five Colgate faculty), \$125K, NSF, 1984.

### **Invited Talks and Conference Presentations:**

"Toward a Model Curriculum for K-12 Computer Science," invited talk for the Computer Science and Information Technology Symposium 2003, Seattle, June 28, 2003.  
"IT Fluency and the K-12 Computer Science Curriculum," invited talk for the Computer Science and Information Technology Symposium 2002, ACM, San Antonio, June 21, 2002.  
"Ensuring a Rigorous Curriculum: Practices and Goals," plenary address for the 7th Annual Consortium for Computing in Small Colleges Northeastern Conference, Worcester, MA, April 20, 2002.  
"From Rigor to Rigor Mortis: Avoiding the Slippery Slope," keynote address for the ACM SIGCSE 2001 Symposium, Charlotte, NC, February 22, 2001.  
"Computer Science Core Concepts for a K-12 Curriculum," invited lecture for the Computer Science and Information Technology Symposium 2000, ACM, Atlanta, June 25, 2000.  
"Computers and Languages: Will They Ever Understand?" Bass Inaugural Lecture, Bowdoin College, April 10, 2000  
"Automated Enhancement of Classification Systems Using Co-Word Analysis," Erskine Lecture, University of Canterbury, July 26, 1999.  
"Automated Enhancement of Classification Systems Using Co-Word Analysis," Purdue University Computer Science Department symposium series, November 14, 1997.  
"Strategic Directions in Computer Science Education," Keynote address - ACM Hudson Valley Chapter's 50th Anniversary of Computing Conference, Marist College, April 18, 1997.  
"Software Tools for the Ultimate Virtual Computer: the Internet," for the Maine IEEE Computer Society's Spring dinner meeting, Portland, April 19, 1997.  
"Emerging Themes in Computing Curricula for Science and Engineering," Keynote address for the XV Brazilian Computer Conference, Canela, Brazil, August 2, 1995.  
"Developing the Breadth First Curriculum: Summary and Evaluation," for the 6th IFIP World Conference on Computers in Education (WCCE 95), Birmingham, UK, July 25, 1995.  
"Evaluation of a Breadth-First Curriculum," for the NECUSE Computer Science Workshop on Curriculum, Harvard University, January 28-29, 1995.  
"Developing the Breadth First Curriculum in Computer Science," for the Teaching Science Seminar series, Dartmouth College, February 16, 1995.  
"Understanding Software Commentary," for the University of Connecticut CS&E Department seminar series, April 1993.  
"Introducing a Breadth First Curriculum in Computer Science," for the ADMI Summer Workshop, New Orleans, LA, August, 1992.  
"Computing Curricula 1991 and Undergraduate Course Development," for the College of Computer Science Curriculum Conference, Northeastern University, September 25, 1992.

- "Introducing Object-Orientedness into a Breadth-First Curriculum," at the OOPSLA 92 Conference, Vancouver, BC, October 19, 1992.
- "Implementing a Breadth First Curriculum 91: Experience and Lessons Learned," at the NECUSE Curriculum Workshop, Harvard University, January 22, 1993.
- "The Impact of Recent Curriculum Recommendations on the Introductory Courses," for the Montclair State College Computer Science Department's 25th Anniversary Conference, November 9, 1991.
- "Early Experience with Adding Breadth and Laboratories to the First Course," at the 1992 ACM Computer Science Conference, Kansas City, MO, March 6, 1992.
- "Teaching the Breadth First Curriculum: Early Experience, " keynote address for the 4th Southeastern Small College Computing Conference, Lenoire-Rhyne College, Hickory, NC, November 9, 1990.
- "Recent Progress with the ACM/IEEE Curriculum Model," at the ACM Computer Science Conference, Washington, DC, February 22, 1990.

### **Other Professional Activities:**

- Chair, ACM K-12 Computer Science Curriculum Committee, 2002-2003
- Member, NSF Computer and Information Science (CISE) Advisory Committee, 2001-2003.
- Co-organizer (with W. Barker and G. Emery), MAA CUPM Workshop on the Undergraduate Mathematics Curriculum, Bowdoin College, October 29-31, 1999.
- Chair, Strategic Directions in Computing Research Working Group on Education , 1996.
- Co-chair, ACM/IEEE Joint Curriculum Task Force, 1988-91.
- Member, National Academy of Sciences Task Force on Information Technology Literacy (1997-98), ACM Computing Classification System Update Committee (1996-97), AP Ad-Hoc Curriculum Committee for Computer Science, Educational Testing Service (1995-96), ACM Task Force on Computer Science Core Curriculum (1985-88), (LACS) The Liberal Arts Computer Science Consortium (1984- ), Association for Computing Machinery, IEEE Computer Society, Computer Professionals for Social Responsibility (CPSR), AAAS, Sloan/McGraw-Hill New Liberal Arts Editorial Advisory Board, Brunswick Schools Technology Committee.
- Editorial Board Member, Journal of Computer Languages, Computers and Translation, Computer Science Education Journal.
- Editor, Computer Science and Engineering Series, CRC Press, Inc., 1996-99.
- Editorial Consultant, McGraw-Hill Computer Science Series, 1991- ,
- Outside reviewer/consultant:  
 St. Michael's College (1999), Lehigh University (1998), Wake Forest University (1998), Holy Cross College (1997), University of Maine (1996), Oberlin College (1996), Goucher College (1996), Amherst College (1994), US Naval Academy (1994), College of William and Mary (1993), SUNY Geneseo (1993-96), Centre College (1991), Bates College (1989), Digital Equipment Corporation (1989), Trinity College (1989), Dickinson College (1988), IBM Corporation (1986), Williams College (1986), Texas Tech University (1985), Loyola College (1983), Smithsonian Institution (1983), Kennedy Institute for Bioethics (1980-1983), Pan American Health Organization (1973-1980)
- Program Evaluator, Computing Sciences Accreditation Board, 1995- .
- Listed in Who's Who in America, American Men and Women of Science, Who's Who in Science and Industry, Who's Who in Technology Today
- Referee/reviewer: National Science Foundation, various journals, publishers, and conferences.

**Bowdoin College:**

Chair, Recording Committee (1997-98), Computing and Information Services Advisory Committee (1993-95).

Co-chair, Bowdoin United Way/MaineShare Campaign, 1996.

Member, Board of Directors-Midcoast Council for Business Development (Bowdoin College representative), 1997-2000, Recording Committee, 1998-2000, Student Affairs Committee, 1995-98, 2002-04, Trustees' Academic Affairs Committee, 1989-91, Trustees' Student Affairs Committee, 1996-98, Bowdoin Chorus, 1992-95, Process Reengineering Steering Committee, 1994-96, President's Strategic Planning Task Force, 1990-91, Curriculum and Educational Policy Committee, 1989-91, Academic Computing Committee, 1988-90.

**Colgate University:**

Member, Dean's Advisory Council, Faculty Affairs Committee, 1986-88.

Project Director, Sloan New Liberal Arts (NLA) Program, 1986-88, Kellogg Curriculum Development on World Food and Hunger, 1986-88, Pew Undergraduate Science Cluster, 1987-88.

**Courses Taught (Most Recent Date)**

Open Source Software Development (2013), Foundations of Computing (2005), Programming Languages (2004), Introduction to Computer Science (2003), Computer Organization (2002), Data Structures (1998), Computers and Society Seminar (1996), Algorithms (1993), Formal Languages and Automata Theory (1992), Compilers (1991).

**Some Personal Information:**

My wife Meg has an undergraduate degree in French and education, an MSW, a certificate ESL, and several years of French, ESL, and classroom teaching experience in public schools. She has served on the Boards of Habitat for Humanity and the NSF-sponsored "Beacon School" math/science curriculum development project.

Since "retiring" in 2008, Meg and I are contributing in different ways to local non-profits, she as a volunteer and I as a software and web site developer. In recent years, I have been fortunate to combine this work with teaching a software development course at Bowdoin. In that course, students develop software for a non-profit and learn about collaboration and other non-technical activities that are crucial to a successful software project. This is a for-credit course, but it also fits well with Bowdoin's commitment to service learning. Several successful projects are now in use at non-profits such as the Ronald McDonald House in Portland, ME. For more detailed information about these activities, see <http://npfi.org> and <http://myopensource.org>.

Years ago, we did a lot of advocacy work on behalf of the adoption of special-needs children, and we continue to share interests in international travel and choral singing. I also enjoy tennis and golf. We have two adult children. Our daughter is Assistant Director of the National Organic Program at the USDA and our son teaches elementary school in Alexandria, Virginia.