

# JOHN P. DOUGHERTY

Department of Computer Science  
Haverford College  
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## EDUCATION

*Ph.D.* in Computer and Information Sciences, Temple University, January 1998  
*Structured Performability Analysis of Fault Tolerant Parallel and Distributed Applications* (Y. Shi)  
*M.S.* in Computer Science, Drexel University, June 1985  
*B.A.* in Mathematics and in Computer Science (dual), La Salle College, May 1982

## TEACHING

Haverford College, Haverford, Pennsylvania [www.cs.haverford.edu](http://www.cs.haverford.edu)

*Assistant Professor of Computer Science*, July 2001 –  
*Visiting Assistant Professor of Computer Science*, July 1997 – June 2001  
*Visiting Instructor of Computer Science*, January 1997 – June 1997

- The World of Computing (CS0)
- Introduction to Computer Science (CS1)
- Introduction to Data Structures (CS2)
- Computer Graphics (EL7)
- Operating Systems (EL11)
- Parallel Computing (EL12)
- Theory of Computation (EL16)
- Senior Thesis

*Computer Science Laboratory Coordinator*, July 1999 – (1 – 1.5 unit release annually)

- implemented transition from Linux to Macintosh OSX (Summer 2003)
- established parallel Linux cluster (Beowulf) for interdepartmental research and senior projects, startup funding from Faculty Research Fund (Summer 2003 – )
- installed and maintained bioinformatics software for HHMI seminar (AY 2001 – 2002)
- upgraded from SuSE 6.4 Linux to SuSE 7.2 Linux (Summer 2001)
- implemented transition from Red Hat 6.0 to SuSE 6.4 Linux (Summer 2000)
- implemented transition from Macintosh to Linux (Summer 1999)
- coordinate services (e.g., NIS+, NFS) with campus ACC (AYs 1999 – 2003)
- schedule lab jointly for Computer Science and for Mathematics (ongoing)
- identify and supervise undergraduate student assistants (ongoing)

Drexel University, Philadelphia, Pennsylvania [pgse.cis.drexel.edu/pgsit/](http://pgse.cis.drexel.edu/pgsit/)  
*Visiting Assistant Professor of Computer Science*, Julys 2000 – 2003  
Software Design Track of the Pennsylvania Governor's School for Information Technology (PGSIT) teaching introductory computer science to high school seniors.

Villanova University, Villanova, Pennsylvania [www.csc.villanova.edu](http://www.csc.villanova.edu)  
*Visiting Assistant Professor of Computer Science* (graduate courses)

- Algorithms and Programming (Summer 2003)
- Operating Systems (Summer 1999)

Beaver College, Glenside, Pennsylvania [www.beaver.edu](http://www.beaver.edu)  
*Visiting Assistant Professor of Computer Science* (Spring 1998)

- Applied Computer Graphics (graduate course)

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Bryn Mawr College, Bryn Mawr, Pennsylvania  
*Visiting Assistant Professor of Computer Science* (Fall 1997)

- Introduction to Data Structures

[www.brynmawr.edu](http://www.brynmawr.edu)

The Shipley School, Bryn Mawr, Pennsylvania  
*Interim Instructor*, September 1997

- Senior Honors Advanced Placement Computer Science

Philadelphia College of Textiles and Science,  
(now Philadelphia University), Philadelphia, Pennsylvania  
*Assistant Professor of Computer Science and Mathematics*, July 1991 – June 1995  
*Visiting Assistant Professor of Computer Science and Mathematics*, September 1997 – June 1991

[www.philau.edu](http://www.philau.edu)

- Business Calculus
- Finite Mathematics
- Quantitative Methods
- Calculus and Analytic Geometry I
- Calculus and Analytic Geometry II
- Computers and Programming I (CS1)
- Computers and Programming II (CS2)
- Computer Organization/Architecture (CS3)
- Assembly Language (VAX/VMS)
- Scientific Programming (FORTRAN)
- Algorithms/Data Structures (EL1)
- Compiler Design (EL3)
- Numerical Methods (EL10)
- Operating Systems - undergraduate (EL11) and graduate
- Parallel Algorithms (EL12)

*Coordinator*: Cooperative Education Program in Science and the Annual Summer High School Workshop in Science; *Liaison* to the Admissions Department. Completely revised and updated the undergraduate curriculum in Computer Science (Computing Curricula 1991); initiated an undergraduate curriculum in Applied Mathematics (SIAM guidelines).

Temple University, Philadelphia, Pennsylvania  
*Graduate Assistant*, September 1985 – September 1987: VAX/VMS assembly courses.

[www.cis.temple.edu](http://www.cis.temple.edu)

Drexel University, Philadelphia, Pennsylvania  
*Teaching Assistant*, September 1983 – June 1985: Finite Math, Pascal Programming.  
*Research Assistant*, September 1984 – June 1985: Numerical Solution of PDEs (ELLPACK).

[www.cs.drexel.edu](http://www.cs.drexel.edu)

American Foundation for Negro Affairs, 117 South 17th Street, Philadelphia, Pennsylvania  
*Computer Instructor*, June 1984 – June 1985: Programming courses in FORTRAN and Pascal.

### RESEARCH IN COMPUTER SCIENCE EDUCATION

Dougherty, J.P., and Wonnacott, D.G. “A rigor-first approach for CS1.” In preparation.

Anderson, R., Dougherty, J.P., Garcia, D.D., Horton, T., and Roger, S.H.. “Panel on teaching faculty positions.” To appear in *Proceedings of the Thirty-fifth Annual Special Interest Group on Computer Science Education (SIGCSE) Technical Symposium*, Norfolk, Virginia, February 2004.

Congdon, C.B., Dougherty, J.P., Evans, M., LeBlanc, M., Little, J.C., Prey, J., Stojkovic, V., and Tymann, P. “Computing, biology and bioinformatics.” Chapter for *Report on Education across Biology, Computing and Mathematics*, in preparation (<http://pub.nigms.nih.gov/challenges>).

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Dougherty, J.P., Clear, T., Cooper, S., Decechi, T., Richards, B., and Wilusz, T. "Information technology fluency in practice." Working group of *The Seventh Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE)*, Aarhus, Denmark, June 23 – 27, 2002; published in *Inroads: The SIGCSE Bulletin*, 35(2): 153 – 171, June 2003.

Dougherty, J.P. "Information technology fluency at a liberal arts college: Experience with implementation and assessment." Presented at *The Eighteenth Annual Consortium for Computing Science in Colleges (CCSC) Eastern Conference*, Bloomsburg University, Bloomsburg, Pennsylvania, October 18 – 19, 2002; published in *The Journal of Computing Sciences in Colleges*, 18(3): 166 – 174, February 2003.

Dougherty, J.P., Kock, N., Sandas, C, and Aiken, R.M. "Teaching the use of IT in specific domains: Developing, assessing and refining a curriculum development framework." *Education and Information Technologies*, 7(2): 137 – 154, June 2002.

Austing, R.A., Cover, F., Dougherty, J.P., East, J.P., and Schneider, G.M. (PFG6) "Computing across the curriculum." Chapter 12 in "Computing curricula 2001," The Joint Task Force on Computing Curricula, E. Roberts, editor. *Journal on Educational Resources in Computing*, 1(3es), ACM Press, 2001 (see [www.computer.org/education/cc2001/final/](http://www.computer.org/education/cc2001/final/)).

Dougherty, J.P., and Lauckner, K. "Computing across the curriculum." In *Proceedings of the Thirty-second Annual Special Interest Group on Computer Science Education (SIGCSE) Technical Symposium*, Charlotte, North Carolina, February 2001 ("birds of a feather" session).

Dougherty, J.P., and Miller\*, T. "An open source computer science laboratory." In *Proceedings of the Sixteenth Annual Eastern Small College Computing Conference*, Scranton, Pennsylvania, October 28, 2000, 152 – 160.

### RESEARCH IN DEPENDABLE PARALLEL SCIENTIFIC COMPUTING

Crawford, F., Cantino\*, A., Dougherty, J.P., Sherman\*, R., and Dhital\*, S. "Distributed processing and archiving of radio pulsar data at small colleges." Submitted to the *Ninth Annual Consortium for Computing Sciences in Colleges, Northeastern Conference*, Union College, Schenectady, New York, April 23 – 24, 2004.

Cantino\*, A., Crawford, F., Dhital\*, S., Dougherty, J.P., and Sherman\*, R. "A low cost distributed computing approach to pulsar searches." To be presented at the *Eleventh SIAM Conference on Parallel Processing for Scientific Computing*, San Francisco, California, February 24 – 27, 2004.

Dougherty, J.P. "Structured performability analysis of parallel applications." *Informatica*, 23(1): 107 – 111, April 1999.

Doty\*, N., and Dougherty, J.P. "Parallel application performance on a network of workstations." *Supercomputing '98*, Orlando, Florida, November 9 – 13, 1998. (poster presentation)

Dougherty, J.P. "Performability models for replicated workers." *European Simulation Symposium*, Erlangen-Nuremberg, Germany, October 26 – 28, 1995.

Dougherty, J.P. "A performability model for a replicated worker application." *Second International Conference on Computer Theory and Informatics*, Wrightsville Beach, North Carolina, September 28 – October 1, 1995.

Dougherty, J.P. "A performability model for parallel and distributed applications." *Mid-Atlantic Workshop on Programming Languages and Systems*, East Stroudsburg University, East Stroudsburg, Pennsylvania, April 8, 1995.

Dougherty, J.P. "Variable - sized partitioning approaches for a distributed algorithm." *Joint Conference on Information Sciences*, Pinehurst, North Carolina, November 14 – 16, 1994.

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\* undergraduate student

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Dougherty, J.P. "Monte Carlo integration in a heterogeneous distributed environment." in *Proceedings of the 26th Annual Hawaiian International Conference on System Sciences*, Maui, Hawaii, January 4 – 8, 1993.

Blathras, K., Dougherty, J.P., and Shi, Y. "The Synergy system - tools for computing the future." *Florida State University Workshop on Cluster Computing*, Tallahassee, Florida, December 5, 1992.

Shi, Y., Liu, L., Blathras, K., and Dougherty, J.P. "Synergy - tools for computing the future." Video-poster presentation at the *Fifth Annual Conference on High-Performance Computing*, Minneapolis, Minnesota, November 12 – 15, 1992.

### SUPERVISED UNDERGRADUATE PROJECTS AND THESES

Dhital, S., Sherman, R., and Cantino, A. "Radio pulsar survey of unidentified EGRET sources." *Proceedings of the Keck Northeast Astronomy Consortium (KNAC) Research Symposium*, Wellesley College, Wellesley, MA, October 24-25, 2003.

Barkan, D. "A parallel application of the Smith-Waterman algorithm." Presented at the *Seventh Annual Consortium for Computing at Small Colleges, Northeastern Conference*, Worcester, Massachusetts, April 19, 2002; published in *The Journal of Computing in Small Colleges*, 17(4): 175 – 176.

Bouchard, D. "Inverse kinematics." Senior Thesis in Computer Science at Haverford College, Spring 2001, 40 pgs.

Palmeter, H. "Web-based tools for a restaurant database." Senior Project in Computer Science at Bryn Mawr College, Spring 2001, 17 pgs.

Waziruddin, S. "An investigation of view morphing: Generating visually consistent image transformations." Senior Project in Computer Science at Bryn Mawr College, May 2000, 28 pgs.

Bowlby, A. "Information technology: A tool or a distraction in the fifth grade classroom?" Independent Study Project in Computer Science at Haverford College, May 2000, 15 pgs.

Wable, K.M. "JaCQ: An interactive application to demonstrate programming in CS0." Presented at the *Fifth Annual Consortium for Computing at Small Colleges, Northeastern Conference*, Ramapo College of New Jersey, Mahwah, New Jersey, April 28 - 29, 2000; published in *The Journal of Computing in Small Colleges*, 15(5): 326 – 327, May 2000.

Miller, T. "Art of the Small." Submitted to *IEEE Software*, November 1999.

### PROFESSIONAL AWARDS

Mellon Tri-College Fellowship, Haverford College, 2002  
Dissertation Grant, Temple University, 1996

### PROFESSIONAL REVIEWS

Snyder, L. *Fluency with Information Technology: Skills, Concepts and Capabilities*. Addison-Wesley, 2004. (compensated textbook review)

Singleton D. "Website performance monitoring: An efficient, transparent and easy to use cluster operating system." Chapter in *Software Quality and Software Testing in Internet Times*. Springer-Verlag, New York, 2002. Reviewed by Dougherty, J.P., *Computing Reviews*<sup>¥</sup>, June 2003.

Huertas J., Avedillo M., Quintana J. "Efficient realization of a threshold voter for self-purging redundancy." *Journal of Electronic Testing: Theory and Applications* 17(1): 69 – 73, 2001. Reviewed by Dougherty, J.P., *Computing Reviews*, April 2003.

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<sup>¥</sup> [www.reviews.com](http://www.reviews.com)

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Ueberhuber C., Kvasnicka D., Gansterer W., Ehold H. "Optimizing local performance in HPF." *Parallel Computing* 28(3): 415 – 432, 2002. Reviewed by Dougherty, J.P., *Computing Reviews*, January 2003.

Dolev D., Birman K., Rodeh O. "The architecture and performance of security protocols in the ensemble group communication system: Using diamonds to guard the castle." *ACM Transactions on Information and System Security* 4(3): 289 – 319, 2001. Reviewed by Dougherty, J.P., *Computing Reviews*, May 2002.

Beacham M., Becker K. "A tool for teaching advanced data structures to computer science students: An overview of the BDP system." *The Journal of Computing Sciences in Colleges* 16(2): 65 – 71, 2001. Reviewed by Dougherty, J.P., *Computing Reviews*, January 2002.

"Fluency with Information Technology at Temple University (CIS155): Independent Observations." December 2000, 7 pages (compensated evaluation report of NSF DUE Grant #9951418).

### CAMPUS SERVICE AT HAVERFORD COLLEGE

Fall 2003 – *Member*, Committee on Radiation Safety

Spring 2003 – *Member*, Committee on Safety and Security

Fall 2002 – *Member*, ad hoc Committee on OneCard Access

AY2001 – 2 *Member*, Committee on Computing and Information Technology

Novembers *Coach* of the undergraduate programming team

2000 – 2003 ACM Mid-Atlantic Regional Programming Contest

April 2002 CCSCNE Programming Contest, Worcester, Massachusetts

Augusts *Customs Program* [www.students.haverford.edu/customs](http://www.students.haverford.edu/customs)

2000 – 2 Workshop for incoming freshman about digital watermarking.

### PROFESSIONAL SERVICE

AY2003 – 4 *Papers Chair*, Consortium for Computing Sciences at Colleges (CCSC) Eastern Conference 2004, Loyola University, Baltimore, Maryland ([www.ccsc.org](http://www.ccsc.org)).

July 9, 2003 *Facilitator* of a three-hour workshop on parallel scientific computing. Howard Hughes Medical Institute (HHMI) Cascade Outreach Program, Haverford College.

June 2003 *Proposal Reviewer* for Science, Technology, Engineering, and Mathematics Talent Expansion Program, National Science Foundation, Arlington, Virginia.

March 2003 *Invited Panelist*, Education Across the Biological, Mathematical, and Computer Sciences, Bethesda, Maryland (<http://pub.nigms.nih.gov/challenges/>). Computer science, mathematics and statistics in biology education and research, (sponsored by NSF, NIGMS, AAAS, MAA, ASM).

AY2002 – 3 *Papers Chair*, CCSC Eastern Conference 2003, Montclair State University, Upper Montclair, New Jersey

Feb. 2001 *Invited Panelist*, information technology usage in education. Temple University, Philadelphia, Pennsylvania, (CIS and Education Departments)

AY2000 – 1 *Chair, Pedagogy Focus Group 6: Computing Across the Curriculum*. Computing Curriculum 2001: ACM/IEEE-CS ([www.computer.org/education/cc2001/final](http://www.computer.org/education/cc2001/final))

July 2001 – *IEEE Transactions on Education, Reviewer* [www.ewh.ieee.org/soc/es/](http://www.ewh.ieee.org/soc/es/)

Sept. 2000 – SIGCSE Technical Symposium, *Reviewer* [www.sigcse.org](http://www.sigcse.org)

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- Fall 2001 – CCSC and CCSCNE Conferences, *Reviewer* [www.ccsc.org](http://www.ccsc.org)  
Fall 1998 *Informatica* (journal), *Reviewer* [orca.st.usm.edu/informatica](http://orca.st.usm.edu/informatica)

### PROFESSIONAL DEVELOPMENT

- Oct. 2003 CCSC Eastern Conference, Montclair State University, Upper Montclair, New Jersey, attendee and papers chair.  
Feb. 2003 SIGCSE Technical Symposium, Reno, Nevada, attendee.  
Oct. 2002 CCSC Eastern Conference, Bloomsburg University, Bloomsburg, Pennsylvania, attendee and presenter.  
AY2002 – 3 Science and Society, HHMI Seminar, Haverford College, participant.  
June 2002 ITiCSE Technical Symposium, Aarhus, Denmark, attendee and chair of a working group.  
April 2002 CCSC Northeast Conference, Worcester State University, Worcester, Massachusetts, attendee and programming contest judge.  
AY2001 – 2 Bioinformatics, HHMI Seminar, Haverford College, participant and tech support.  
Feb. 2001 SIGCSE Technical Symposium, Charlotte, North Carolina, attendee.  
Oct. 2000 Eastern Small College Computing Consortium (ESCCC) Conference, University of Scranton, Scranton, Pennsylvania, presenter and attendee.  
AY2000 – 1 Computing Across the Sciences, HHMI Seminar, Haverford College, participant.  
June 2000 "Increasing non-science undergraduate student fluency with information technology from within CS0." NSF-EHS-DUE-CCLI Grant Proposal (not accepted).  
June 2000 "A Comprehensive Suite of Laboratory Projects for an Object-Oriented Computer Science Curriculum." Northeastern University, Boston, Massachusetts (NSF-EHS-DUE-CCLI: V. Proulx).  
April 2000 CSCC - Northeast Conference, Ramapo College, Mahwah, New Jersey, attendee and student research judge.  
March 2000 SIGCSE Technical Symposium, Austin, Texas, attendee.  
October 1999 Open Source/Open Science Technical Symposium, Brookhaven National Laboratory, Long Island, New York, attendee.  
March 1999 SIGCSE Technical Symposium, New Orleans, Louisiana, attendee.  
June 1998 "Workshop for Undergraduate Parallel Computing." Colgate University, Hamilton, New York (NSF-DUE-EHS-CCLI: C. Nevison).

### COMMUNITY SERVICE

- Sept. 2002 – Rotary Club of Ardmore, Ardmore, Pennsylvania  
*Member* [www.ardmorerotary.org](http://www.ardmorerotary.org)  
Service club that promotes local community projects, especially those with global impact; committees for music, pancake breakfast, and annual basketball tournament.
- June 2002 – Parent Support Group, Bryn Mawr, Pennsylvania  
*Member* of a support group that provides information and advocacy to help families of children with special needs (in conjunction with the Parents Advisory Network and the Social Services Department of Bryn Mawr Hospital).

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- July 2001 – Special Parents of Exceptional Kids (SPEK), Chestnut Hill, Pennsylvania  
*Organizer* of a support group that provides information and advocacy to help families of children with special needs (in conjunction with United Cerebral Palsy of Philadelphia County).
- June 1995 – Friends of Erik, Philadelphia, Pennsylvania  
*Associate Board Member* [www.runforthehilllofit.org](http://www.runforthehilllofit.org)  
Organization that sponsors two annual fund raisers for the family of a local child in a severe medical situation, in memory of the initial beneficiary.
- Sept. 1994 – April 1998 Rotary Club of Chestnut Hill, Philadelphia, Pennsylvania  
*Charter Member* [www.chestnuthillrotary.org](http://www.chestnuthillrotary.org)  
Service club that promotes local community projects, especially those with global impact; as *Vice-President* (1996 - 1997), supported local Red Cross Blood Drive and initiated Rotaract service club at the University of Pennsylvania; as *Charter Secretary* (1994 - 1996), initiated and organized the club, including coordination with the local District 7450 and with Rotary International ([www.rotary.org](http://www.rotary.org)).
- Octobers 1995 – 1998 Philadelphia AIDS Walk, Philadelphia, Pennsylvania  
*Volunteer/Musician* [www.critpath.org/fawol/walk.html](http://www.critpath.org/fawol/walk.html)
- October 1993 – May 1994 Betak, Mount Airy, Philadelphia, Pennsylvania  
*Volunteer/Musician*: Performed for AIDS patients and their families.

### PERSONAL

Member of Kappa Mu Epsilon; Institute for Electrical and Electronic Engineers - Computer Society (IEEE-CS), the Consortium on Computing at Small Colleges (CCSC), the Association of Computing Machinery (ACM), and the Special Interest Group on Computer Science Education (SIGCSE). Interests include guitar and vocals, music, competitive sports, advocacy for the disabled, and my family.