

Mike O’Leary

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Education

Ph.D. Mathematics, Northwestern University, 1995

M.S. Mathematics, Northwestern University, 1991

B.S. Physics and Mathematics, Benedictine University, (formerly Illinois Benedictine College), 1989

Academic Appointments

2011–Present Director, School of Emerging Technologies, Towson University
2009–Present Professor, Department of Mathematics, Towson University
2008–Present Director, Integrated Homeland Security Management Master’s Program, Towson University
2007–2011 Director, Center for Applied Information Technology, Towson University
2005–Present Joint Appointment with the Department of Computer and Information Sciences, Towson University
2003–2009 Associate Professor, Department of Mathematics, Towson University
1998–2003 Assistant Professor, Department of Mathematics, Towson University
1997–1998 Visiting Assistant Professor, Department of Mathematics, University of California, Santa Cruz
1995–1997 Visiting Assistant Professor, Department of Mathematics, University of Oklahoma

Major Accomplishments

- Developed a new mathematical algorithm for the geographic profiling problem, which is the problem of estimating the location of the home base of a serial criminal based on the location of the crimes. Implemented the algorithm in open source software and provided the tool to police agencies across the country for use.
- Directed the Center for Applied Information Technology, a self-support unit inside the Division of Economic and Community Outreach that provides the M.S. in Applied Information Technology. Responsible for budgeting, finances, staffing, and physical space. Doubled enrollment to 327 students from 2007 to 2011. Brought the program to the HEAT Center in 2009, developed new courses to support the needs of Aberdeen Proving Grounds, and began offering the program online.
- Created and developed the course Case Studies in Computer Security, the capstone course for undergraduate computer security students. Created and led the Towson University student Cyber Defense team, which has won three of the last four major regional competitions, including the 2011 Maryland Cyber Challenge, the 2010 CSC Cyb3r Battl3ground competition, and the 2010 CCDC Mid-Atlantic Regional competition.
- Created and ran a three-year long NSF supported program for faculty development in cyber security focused on faculty from community colleges throughout Maryland. Faculty from 22 institutions participated in one or more of our activities, including eleven full-day or multi-day workshops, six faculty research partnerships and three externships.
- Directed and ran the Towson University Applied Mathematics Laboratory, which looks for undergraduate research projects in applied mathematics sponsored by local companies and government agencies. Successfully solicited students, faculty advisors and projects from the Baltimore City Fire Department, the Baltimore County Department of Environmental Protection and Resource Management, the Carroll Area Transit System, and the National Institute of Justice. Was one of the co-organizers of the Mathematical Association of America’s Undergraduate Research Poster Session at the Joint National Meetings from 2007 through 2011; in 2011 more than 250 undergraduate research posters were presented.

Grants

I have served as the principal investigator or co-principal investigator on thirteen externally funded projects valued at more than \$1.6M.

13. M. O'Leary (PI), C. Turner, *DoD Information Assurance Scholarship Program: Capacity Building; Helping Bowie State Develop a Case Studies Course in Computer Security*, Department of Defense, H98230-11-100437, 8/11 - 11/12, \$20,192.
12. M. O'Leary (PI), S. Hilberg & S. Chakraborty (co-PI), *Expanding the Reach of IT Programs*, Maryland Higher Education Commission BRAC Higher Education Fund, \$73,844, 1/2011 - 12/2011.
11. M. O'Leary (PI), S. Kaza, W. Yu, & L. Ray, *DoD Information Assurance Scholarship Program; Scholarship & Capacity Building*, Department of Defense, 9/10 - 12/11, \$61,493.
10. M. O'Leary (PI), *The Mathematics of Geographic Profiling*, National Institute of Justice 2009-SQ-B9-K014, 8/09 - 7/11, \$95,465.
9. M. O'Leary (PI), S. Kaza & S. Acharya (co-PI), *Expanding an Applied Information Technology Masters Program*, Maryland Higher Education Commission BRAC Higher Education Fund, \$90,990, 1/2009 - 12/2009.
8. H. Hochheiser (PI), B. Taylor, S. Azadegan, C. Turner & M. O'Leary (co-PI), *Building Security In: Injecting Security throughout the Undergraduate Computing Curriculum*, National Science Foundation, Course Curriculum and Laboratory Improvement: Phase 2 (Expansion Projects), DUE 0817267, 9/2008-8/2011, \$399,506.
7. J. Feng (PI), J. Lazar, M. O'Leary & C. Turner (co-PI), *Integrating Usability and Accessibility in Information Assurance Education*, National Science Foundation, Federal Cyber Service: Scholarship for Service, DUE 0830865, 10/2008-9/2010, \$299,982.
6. M. O'Leary (PI), *The Mathematics of Geographic Profiling*, National Institute of Justice 2007-DE-BX-K005, 9/07 - 8/08, \$45,443.
5. M. O'Leary (PI) & C. Turner (co-PI), *A Second Generation Faculty Development Program*, National Science Foundation, Federal Cyber Service: Scholarship for Service, DUE 0723368, 9/07 - 8/10, \$299,963.
4. M. O'Leary (PI), A. Engel & C.L. May (co-PI), *Finding the Optimal Search Area for a Serial Criminal*, National Institute of Justice 2005-IJ-CX-K036, 7/05 - 8/07, \$49,961
3. S. Azadegan (PI), M. O'Leary, D. Frincke, A. Wijeshinha, & M. Zimand (co-PI), *An Undergraduate Computer Security Track*, National Science Foundation, Federal Cyber Service: Scholarship for Service, DUE 0113783, 9/01-8/03, \$160,068.
2. M. O'Leary (PI) & S. Azadegan (co-PI), *A Mathematics Course in Scientific Simulation*, National Science Foundation, Course, Curriculum and Laboratory Improvement, DUE 9952625, 4/00 - 10/03, \$68,982.
1. M. Siegel (PI), M. O'Leary & S. Azadegan (co-PI), *Validation and Enhancements of Application of Models from Epidemiology to INFOSEC Assurance Metrics*, Science Applications International Corporation, 10/29/98 - 9/30/99, \$25,686.

Research

My current research is on the geographic profiling problem, which is to create a search area for the location of the home base of a serial criminal from knowledge of the offender's crime locations. I am also deeply involved in the development of improved teaching techniques for cyber security education.

Past work has been on the mathematical analysis of singular and degenerate parabolic partial differential equations, as well as the Navier-Stokes system for fluid mechanics.

Publications

33. M. O'Leary, *Modeling Criminal Distance Decay*, *Cityscape*, **13**, No. 3 (2011), *to appear*.
32. M. O'Leary, *Multimodel Inference and Geographic Profiling*, *Crime Mapping: A Journal of Research and Practice* **2**, No. 1, (2010).
31. M. O'Leary, *Implementing a Bayesian approach to criminal geographic profiling*, First International Conference on Computing for Geospatial Research and Application (COM.Geo 2010), June 21-23, 2010, Washington, DC.

30. C. Turner, J. Odibuyi and M. O'Leary, *A Cross-Institutional Faculty Research Mentorship Program in Information Security and Assurance*, Proceedings of the 14th Colloquium for Information Systems Security Education Baltimore, MD, June 7-9, 2010
29. M. O'Leary, *The Mathematics of Geographic Profiling*, Journal of Investigative Psychology and Offender Profiling **6**, No. 3 (2009), pp. 253-265.
28. C. Turner, H. Hochheiser, J. Feng, B. Taylor, J. Lazar, A. Zenebe, S. Azadegan & M. O'Leary, *Cooperative Information Assurance Capacity Building*, Proceedings of the 13th Colloquium for Information Systems Security Education, Seattle, WA, June 1 - 3, 2009.
27. B. Taylor, H. Hochheiser, S. Azadegan & M. O'Leary, *Cross-site Security Integration: Preliminary Experiences across Curricula and Institutions*, Proceedings of the 13th Colloquium for Information Systems Security Education, Seattle, WA, June 1 - 3, 2009.
26. J. Miller & M. O'Leary, *A diffusion model in population genetics with dynamic fitness*, J. Differential Equations **225**, No.2, (2006), pp. 465-512.
25. M. O'Leary, S. Azadegan & J. Lakhani, *Development of a Honeynet Laboratory: A Case Study*, Proceedings of the 7th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (Las Vegas, NV, June 19-20, 2006), pp. 401-406.
24. S. Azadegan, M. O'Leary, A. Wijesinha, & M. Zimand, *Undergraduate Computer Security Education: A Report on our Experience & Learning*, in *Practical and Experimental Approaches to Information Security Education*, Proceedings of WECS 7, Cynthia Irvine, Matthew Rose and Naomi Falby (eds.), pp. 17-27.
23. J. Wolfson & M. O'Leary, *Undergraduate Research and Civic Engagement: Tale of Two Programs*, CUR Quarterly, **26** No. 2, December 2005, pp 70-73.
22. M. O'Leary, *Go with the Flow*, in *Demos with Positive Impact*, D.R. Hill & L.F. Roberts, eds., Internet, August 2005, <http://www.mathdemos.org/mathdemos>
21. M. O'Leary & S. Azadegan, *An Interdisciplinary Approach to Scientific Modeling and Simulation*. In Proceedings of the Sixth International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing and First ACIS International Workshop on Self-Assembling Wireless Networks (Snpd/Sawn'05) - Volume 00 (May 23 - 25, 2005). IEEE Computer Society, Washington, DC, 372-377.
20. A. Engel, C.L. May & M. O'Leary, *The Baltimore City Fire Department Staffing Problem*, in *Mathematics in Service to the Community. Concepts and Models for Service Learning in the Mathematical Sciences*, C. Hadlock ed., The Mathematical Association of America, 2005, pp. 35-46.
19. T. Giorgi & M. O'Leary, *On the local integrability and boundedness of solutions to quasilinear parabolic systems*, Electron. J. Qual. Theory Differ. Equ. **2004**(2004), No. 14, pp. 1-14.
18. M. O'Leary, *Developing Computer Simulations Using Object-Oriented Programming. The Three-Body Problem: A Case Study*, in Proceedings of the Fifteenth Annual International Conference on Technology in Collegiate Mathematics (ICTCM 15), Pearson, 2004, pp. 222-226.
17. M. O'Leary, *Conditions for the Local Boundedness of Solutions to the Navier-Stokes System in Three Dimensions*, Comm. Partial Differential Equations **28** (2003), pp. 617-636.
16. S. Azadegan, M. Lavine, M. O'Leary, A. Wijesinha, & M. Zimand, *An Undergraduate Track in Computer Security*, in *Security Education and Critical Infrastructures*, C.E. Irvine & H. Armstrong (Eds.), IFIP Conference Proceedings **253**, Kluwer, 2003, pp. 319-332.
15. S. Azadegan, M. Lavine, M. O'Leary, A. Wijesinha, & M. Zimand, *An Undergraduate Track in Computer Security*, in Proceedings of the 8th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE-03), Thessaloniki, Greece, June 30 - July 2 2003, pp. 207-210.
14. J.L. Aron, M. O'Leary, R.A. Gove, S. Azadegan, & M.C. Schneider, *The Benefits of a Notification Process in Addressing the Worsening Computer Virus Problem: Results of a Survey and a Simulation Model*, Computers & Security **21** (2002), pp. 142-163.
13. M. O'Leary, *The Resonant Filter*, in *Demos with Positive Impact*, D.R. Hill & L.F. Roberts eds., Internet, July 2002, <http://www.mathdemos.org/mathdemos>
12. R. Boules & M. O'Leary, *Mathematica Based Computer Laboratories for the Enhancement of a Calculus Sequence*, in Proceedings of the Thirteenth Annual International Conference on Technology in Collegiate Mathematics (ICTCM 13), Addison Wesley, 2002, pp. 35-39.

11. J. Miller, M. O'Leary, & M. Schonbek, *Nonexistence of Singular Pseudo-Self-Similar Solutions of the Navier-Stokes System*, Math. Ann. **319**, (2001), 809-815.
10. M. O'Leary, *Integrability and Boundedness for Local Solutions to Doubly Degenerate Quasilinear Parabolic Equations*, Adv. Differential Equations, **5**(10-12), October-December 2000, pp. 1465-1492.
9. M. O'Leary, *Local Estimates for Solutions to Singular and Degenerate Quasilinear Parabolic Equations*, in *Nonlinear Partial Differential Equations*, G.-Q. Chen and E. DiBenedetto, eds., Contemporary Mathematics, **238**, American Mathematical Society, Providence, RI, 1999, pp. 241-249.
8. M. O'Leary, *Integrability and Boundedness for Local Solutions of Singular and Degenerate Quasilinear Parabolic Equations*, Differential Integral Equations, **12** (1999), no. 3, pp. 435-452.
7. M. O'Leary, *Pressure Conditions for the Local Regularity of Solutions of the Navier-Stokes Equations*, Electron. J. Differential Equations, **1998**(1998), No. 12, pp. 1-9.
6. M. O'Leary, *Taylor Polynomials for Rational Functions*, The College Mathematics Journal, **29**(3), June 1998, pp. 226-228.
5. M. O'Leary, *Mushy Regions in Conduction-Convection Problems with Change of Phase*, Proceedings of the Thirteenth Annual Conference on Applied Mathematics, University of Central Oklahoma, 1997. (Refereed Proceedings)
4. M. O'Leary, *Analysis of the Mushy Region in Conduction-Convection Problems with Change of Phase*, Electron. J. Differential Equations, **1997**(1997), No. 04, pp. 1-14.
3. E. DiBenedetto & M. O'Leary, *Conduction-Convection Problems with Change of Phase*, SIAM Special Volume for the 70th Birthday of I. Stackgold, (1995), pp. 104-114.
2. E. DiBenedetto & M. O'Leary, *Local C^α Convergence of Elliptic Regularizations of Parabolic Equations*, Meccanica, **28**, (1993), pp. 97-102.
1. E. DiBenedetto & M. O'Leary, *Three Dimensional Conduction-Convection Problems with Change of Phase*, Arch. Rat. Mech. Anal., **123**, (1993), pp. 99-116.

Laboratory Manuals

3. M. O'Leary & S. Azadegan, *A Course in Scientific Simulation*, Academx Press, 2003.
2. R. Boules, G. Goodson, O. Kim & M. O'Leary, *Laboratory Explorations for Single-variable Calculus using Mathematica*, Harcourt Custom Publishers, 2001.
1. R. Boules, G. Goodson, O. Kim & M. O'Leary, *Laboratory Explorations for Multivariable Calculus using Mathematica*, Harcourt Custom Publishers, 2001.

Talks and Presentations

59. *Patterns in Offender Distance Decay and the Geographic Profiling Problem*, Eleventh Crime Mapping Conference, Miami, FL, October 2011.
58. *A New Software Prototype for Geographic Profiling*, Eleventh Crime Mapping Conference, Miami, FL, October 2011.
57. *Applying Mathematics... to Catch Criminals*, Randolph Macon College, Ashland, VA September 2011.
56. *Patterns in Offender Distance Decay and the Geographic Profiling Problem*, AMS-MAA Joint Meetings, New Orleans, LA, January 2011.
55. *Patterns in Offender Distance Decay and the Geographic Profiling Problem*, 1063rd Meeting of the American Mathematical Society, Los Angeles, CA, October 2010.
54. *Implementing a Bayesian Approach for the Geographic Profiling Problem*, The First International Conference on Computing for Geospatial Research and Applications (COM.Geo 2010), Washington, DC, June 2010.
53. *New Approaches for the Geographic Profiling Problem*, The NIJ Conference, Arlington, VA, June 2010
52. *Modeling Distance Decay for the Geographic Profiling Problem*, Geospatial Technical Working Group, Portland, OR, April 2010.
51. *Searching for the Home Base of a Serial Criminal*, AMS-MAA Joint Meetings, San Francisco, CA, January 2010

50. *Mathematical models for geographic profiling problem*, UCLA Applied Mathematics Colloquium, Los Angeles, CA, November 2009
49. *A new software tool for geographic profiling*, The Tenth Crime Mapping Conference, New Orleans, LA, August 2009
48. *A new software tool for geographic profiling*, The NIJ Conference, Arlington, VA, June 2009
47. *Cross-site Security Integration: Preliminary Experiences across Curricula and Institutions*, 13th Colloquium for Information Systems Security Education, Seattle, WA, June 2009.
46. *Mathematical models for the geographic profiling problem*, Center for Evidence-Based Crime Policy, George Mason University, Fairfax, VA, March 2009
45. *Mathematical models for the geographic profiling problem*, Georgetown University Mathematics Department Colloquium, Washington, DC, March 2009
44. *Determining the Optimal Search Area for a Serial Criminal*, Joint Mathematics Meetings, Washington DC, January 2009.
43. *A Diffusion Model in Population Genetics with Mutation and Dynamic Fitness*, PDE Seminar, Vanderbilt University, Nashville, TN, November 2008.
42. *Advances in Geographic Profiling*, 31st Applied Geography Conference, Wilmington DE, October 2008.
41. *Determining the Optimal Search Area for a Serial Criminal*, INFORMS National Meeting, Washington, DC, October 2008.
40. *Using Mathematics... To Catch Criminals*, Kappa Mu Epsilon Initiation, Stevenson University, Baltimore, MD, September 2008.
39. *The Mathematics of Geographic Profiling*, The NIJ Conference, Arlington, VA, July 2008
38. *A Diffusion Model in Population Genetics with Mutation and Dynamic Fitness*, The World Conference on Non-linear Analysis, Orlando, FL, July 2008
37. *A Diffusion Model in Population Genetics with Mutation and Dynamic Fitness*, The Sixth International Conference on Differential Equations and Dynamical Systems, Baltimore, MD, May 2008.
36. *The Mathematics of Geographic Profiling*, Spring Meeting, Geospatial Technology Working Group, New Orleans, LA, April 2008.
35. *The Mathematics of Geographic Profiling*, Center for Army Analysis, Fort Belvoir, VA, April 2008
34. *Starting and Maintaining a Student Industrial Research Program in the Mathematical Sciences*, (Panel Discussion with Tim Hsu, Bob Borrelli and Michael Raugh), MathFest, San Jose, CA, August 2007.
33. *The Mathematics of Geographic Profiling*, Baltimore County Police Department, Towson, MD, June 2007
32. *The Mathematics of Geographic Profiling*, Ninth Crime Mapping Research Conference, Pittsburgh, PA, March 2007.
31. *The Mathematics of Geographic Profiling*, Crime Hot Spots: Behavioral, Computational and Mathematical Models, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, CA, January 29 - February 2, 2007
30. *Web Security*, 8th Session of the Information Security Discussion Series, Social Security Administration, Baltimore, MD, August 2006.
29. *A New Mathematical Technique for Geographic Profiling*, The NIJ Conference, Washington, DC, July 2006.
28. *Undergraduate Research and Civic Engagement: A Tale of Two Programs*, CUR 2006 National Conference, DePauw University, Greencastle, IN, June 2006. [with J. Wolfson]
27. *Determining the Optimal Search Area for a Serial Criminal*, Modeling and Simulation Technical Working Group, National Institute of Justice, Jersey City, NJ, March 2006.
26. *A Laboratory Based Capstone Course in Computer Security for Undergraduates*, Thirty-Seventh SIGCSE Technical Symposium on Computer Science Education, Houston, TX, March 2006.
25. *Go with the Flow*, Joint Mathematics Meetings, San Antonio, TX, January 2006.
24. *A Mesoscale Diffusion Model in Population Genetics with Dynamic Fitness*, Seminar, Towson University, April 2005.
23. *"Optimum" Strategies for Information Security*, Towson University, Towson, MD, October 2004.
22. *Conditions for the Local Boundedness of Solutions to the Navier-Stokes System in Three Dimensions*, 996th Meeting of the American Mathematical Society, University of Southern California, Los Angeles, CA, April

- 2004.
21. *The Towson University Applied Mathematics Laboratory*, Joint Mathematics Meetings, Phoenix, AZ, January 2004.
 20. *A Course in Scientific Simulation*, Joint Mathematics Meetings, Phoenix, January 2004. [Poster Session]
 19. *Developing Demonstrations and Simulations using Microsoft Visual C++*, International Conference on Technology in Collegiate Mathematics, (ICTCM 16), Rosemont, IL, November 2003.
 18. *An Undergraduate Track in Computer Security*, Third Annual World Conference on Information Security (WISE 3), Monterey, CA, June 2003.
 17. *Using Epidemiological Models to Analyze the Spread of Computer Viruses*, Montclair State University, March 2003.
 16. *Developing Computer Simulations Using Object-Oriented Programming. The Three-Body Problem: A Case Study*, International Conference on Technology in Collegiate Mathematics (ICTCM 15), Orlando, FL, November 2002.
 15. *Conditions for the Local Regularity of Solutions to the Navier-Stokes System*, Towson University, Towson, MD, October 2002.
 14. *A Course in Scientific Modeling and Simulation*, NSF DUE Projects in Mathematics, Arlington, VA, March 2002. [Poster Session]
 13. *Modeling and Simulating the Double Pendulum*, Joint Mathematics Meetings, San Diego, CA, January 2002.
 12. *Mathematica Based Computer Laboratories for the Enhancement of a Calculus Sequence*, Thirteenth Annual International Conference on Technology in Collegiate Mathematics (ICTCM 13), Atlanta, GA, November 2000 [with R. Boules].
 11. *Pressure Conditions for the Local Regularity of the Navier-Stokes Equations*, Georgetown University, Washington, DC, September 1999.
 10. *Pseudo-Self-Similar Solutions of the Navier-Stokes System*, Towson University, Towson, MD, September 1999.
 9. *An Analysis of the Mushy Region in Conduction-Convection Problems with Change of Phase*, Towson University, Towson, MD, October 1998.
 8. *Integrability and Boundedness of Local Solutions to Singular and Degenerate Quasilinear Parabolic Equations*, International Conference on Nonlinear PDE and Applications, Evanston, IL, March 1998.
 7. *Using Projects in a Large Lecture Traditional Calculus Course: Notes from the Field*, MAA Sectional Meeting, University of Central Oklahoma, Edmond, OK, April 1997.
 6. *Pressure Conditions for the Local Regularity of the Navier-Stokes Equations*, University of Oklahoma, Norman, OK, March 1997.
 5. *An Analysis of the Mushy Region in Conduction-Convection Problems with Change of Phase*, Thirteenth Annual Conference on Applied Mathematics, University of Central Oklahoma, Edmond, OK, February 1997.
 4. *An Analysis of the Mushy Region in Conduction-Convection Problems with Change of Phase*, University of Oklahoma, Norman, OK, September 1996.
 3. *Conduction-Convection Problems with Change of Phase*, University of Oklahoma, Norman, OK, September 1995.
 2. *Conduction-Convection Problems with Change of Phase*, SIAM-CBMS Conference on Inverse Problems and Non-Destructive Evaluation, June 1995.
 1. *Conduction-Convection Problems with Change of Phase*, Free Boundary Problems, Theory and Applications, Toledo, Spain, June 1993. (Poster Session)

Teaching

In mathematics, I have experience teaching a range of undergraduate and graduate courses, including Calculus, Discrete Mathematics, Differential Equations, Euclidean and Non-Euclidean Geometry, Mathematical Models, Numerical Analysis, Integral Transforms, Partial Differential Equations, and Asymptotic and Perturbation Methods.

I co-developed an interdisciplinary course in Scientific Modeling and Simulation, an undergraduate course that combines mathematical modeling and numerical analysis with event-driven graphical computer programming to develop computer simulations of various physical problems.

In computer science, I created and developed the course Case Studies in Computer Security, which is the hands-on capstone course in the undergraduate computer security track. In this class students create, set-up, defend and attack real computer networks in an isolated laboratory setting. I have also taught Application Software Security at the graduate level.

I founded and have led the Towson University Cyber Defense team since our first competition in 2006. We have won three of the last four major regional competitions, including the 2011 Maryland Cyber Challenge, the 2010 CSC Cyb3r Battl3ground competition, and the 2010 CCDC Mid-Atlantic Regional competition.

Graduate Students

- Jorge Lara Alvarado, M.S. Applied Information Technology, 2009
- Doug Reed, M.S. Computer Science, 2009
- Luke Samuels, M.S. Computer Science, 2009
- Justin Brock, M.S. Applied & Industrial Mathematics, 2008
- Shaun Sensenig, M.S. Computer Science, 2007
- Paul Corbitt, M.S., Applied & Industrial Mathematics, 2006
- Jay Lakhani M.S., Computer Science, 2006
- Quang Luu M.S., Computer Science, 2006

Service

School of Emerging Technology

- In October 2011 I was appointed as the founding Director of the School of Emerging Technology.
- The School of Emerging Technology will promote interdisciplinary programs involving two or more academic areas, or involving TU personnel and external partners, that might otherwise have difficulty collaborating successfully; provide resources such as administrative support, start-up seed funds, and space for such programs; and highlight TU's interdisciplinary educational and research programs both within and outside of the institution.

Applied Information Technology

- I was the director of the Center for Applied Information Technology from November 2007 through June 2011 when the Center was re-organized. Since July 2011 I have been the director of the M.S. program in Applied Information Technology.
- The Center for Applied Information Technology was part of the Division of Economic and Community Outreach. The role of the Center was to run and develop graduate programs in applied information technology that meet the needs of the local community, to create and nurture partnerships with companies and government agencies, and to develop external grants and contracts. The Center was a self-support unit, and I was responsible for budgeting, finances, staffing, and the physical space.
- I was part of the team that developed the material for Towson's application to be re-certified as a Center of Excellence in Information Assurance Education. Our application was accepted, and we have been re-certified through 2013.
- I developed the CAIT Fellows program, by which the Center supports university faculty working on projects in applied information technology with a focus on economic and community outreach.
- I worked to place students on external graduate assistantships with a number of area government agencies and companies. Students have been placed with the Maryland Department of Human Resources, the Maryland Department of Health and Mental Hygiene, and the Board of Child Care. The value of these contracts from 2007-2011 is \$217,072.
- I developed a program to allow Applied Information Technology students to complete their Master's Case Study project for an external organization or non-profit. Sponsors have included Senior Box Office, Hearts & Ears, RESI, CUMMU, and a number of TU departments, including OTS and the Department of Occupational Therapy and Occupational Science.

- I brought the M.S. in Applied Information Technology to the HEAT Center, and worked to create new courses to support the needs of the workers at Aberdeen Proving Grounds, including finding two grants to support these efforts.
- I began offering the M.S. in Applied Information Technology online, including finding two grants to support the online program, one to develop an online cyber security laboratory and one to develop an online environment to support the teaching of elementary programming.

Integrated Homeland Security Management

- I have been director of the Master's program in Integrated Homeland Security Management since August 2008.
- The Integrated Homeland Security Management Master's program has now held two Badolato Speaker Series events; speakers have included Dr. Lenora Gant, Deputy Assistant of the Office of the Director of National Intelligence, as well as Dr. Joseph Rudolph, a Towson faculty member best known for his work on ethnic and national conflict, including recently his Encyclopedia of Modern Ethnic Conflict and volume on Hot Spots in North America and Europe.

Applied Mathematics Laboratory

- I was the director of the Applied Mathematics Laboratory from 2000-2008.
- The Applied Mathematics Laboratory looks for undergraduate research projects in applied mathematics sponsored by local companies and government agencies, then forms teams of students and faculty members to work on the problem.
- Over 2005-2008 we had three projects with the National Institute of Justice to develop an algorithm that will better predict the anchor point of a serial criminal when the crime locations are known.
- In 2004-2005 we had a project with the Carroll Area Transit System to analyze their operations and to predict the number of buses that the system will require in the future. We received a \$1,500 grant to support this project.
- In 2003-2005 we had two projects with the Baltimore County Department of Environmental Protection and Resource Management to study water well failure patterns in rural Baltimore County.
- In 2002-2003 we had a project with the Baltimore City Fire Department to study their scheduling process in an attempt to reduce costs. The student team briefed the Mayor and his staff on the project. A three-minute piece describing the briefing was broadcast on Fox45 Television during the Ten O'Clock news on May 9, 2003. An article was written by Associated Press, and picked up by WBAL Television, and put on their web site.

National

- I have worked with the Mathematical Association of America on a number of projects related to undergraduate research in mathematics.
 - I have been a member of the Committee on Student Activities and Chapters since 2007.
 - I served on the Subcommittee on Undergraduate Research from 2000–2007.
 - I worked with the organizers of the Undergraduate Research Poster Session at the Joint National Meetings from 2006–2011.
 - * I was responsible for making the assignments of judges to posters, ensuring that each poster was judged by faculty who were expert in the research area and had no common affiliations with the students and/or their advisor(s).
 - * I helped to develop the scoring criteria, the score sheets, and the tie breaking algorithms.
 - * I developed and wrote a computerized scoring network that used a web server and a back end database to allow the organizing team to simultaneously enter the scores into the system using individual laptops.
 - * In 2011, more than 250 undergraduate research posters were presented.
- I have served as a grant reviewer for the National Science Foundation (CCLI, 2002).
- I have served as a grant reviewer for the National Institute of Justice (2009, 2010).

- I served on the editorial board for The UMAP Journal (2008-2011).
- I have served as a referee for a number of academic journals and conferences, including
 - SIAM Journal on Applied Mathematics (2011, 2010, 2009)
 - International Journal of Network Security (2011, 2007)
 - The Colloquium for Information Systems Security Education (2011)
 - Crime Mapping: A Journal of Theory and Practice (2010)
 - Nonlinear Analysis (2007)
 - Electronic Journal of Differential Equations (2005,1998)
 - Pacific Journal of Mathematics (2004)
 - Journal of Mathematical Analysis and Applications (2004)
 - Discrete and Continuous Dynamical Systems (2003)
 - IFIP/IEEE International Conference of Dependable Systems and Networks, Dependable Computing and Communications Symposium (2003)
 - Electronic Journal of Qualitative Theory of Differential Equations (2002)
 - SIAM Journal on Mathematical Analysis (1999)
 - Advances in Differential Equations (1998)
- I am a reviewer for Math Reviews (2008-).

University

- I was a member of the search committee for the Vice President of the Division of Economic and Community Outreach, 2008.
- I was a member of the Faculty Leadership Class for 2001–2002.
- Member, Undergraduate Research Council, 2000–2011.
- Member, University Senate Subcommittee on Information Technology, 2004–2009; Vice-Chair for 2005–2006, 2008–2009; Chair for 2006–2008.

College

- Member, CSM Committee on Undergraduate Research, 2000–2003.

Awards

- Fisher College of Science and Mathematics, Business and Community Outreach Award, 2006.
- 1994-95 Alfred P. Sloan Doctoral Dissertation Fellow.