

MCURRICULUM VITAE
Mette Sofie Olufsen, PhD

Prepared on: Feb 2017

Work Address: Department of Mathematics
 Campus Box 8205
 North Carolina State University
 Raleigh, NC 27695

Telephone: 919 515 2678

Fax: 919 513 7336

Home Address: 3011 Buckingham Way, Apex, NC 27502

Telephone: 919 362 5287 (h); 919 802 0201 (c)

E-mail: msolufse@math.ncsu.edu

Website: <http://www4.ncsu.edu/~msolufse>

EDUCATION

- 1993 MSc Mathematics and Computer Science, Roskilde University, Denmark.
 Thesis: *DISCO - DIScrete and COntinuous Simulation in Turbo Pascal.*
- 1998 PhD Applied Mathematics, Roskilde University, Denmark.
 Thesis: *Modeling the Arterial System with Reference to an Anesthesia Simulator.*

PROFESSIONAL APPOINTMENTS

- 1994-1998 Industrial Researcher, Math-Tech, Copenhagen, Denmark.
- 1994-1998 Research Assistant, Department of Mathematics, Roskilde University.
- 1998-2001 Research Associate, Center for BioDynamics and Dept of Mathematics, Boston University, Boston, MA.
- 2001-2006 Assistant Professor, Dept of Mathematics, NC State University, Raleigh, NC.
- 2007-2013 Associate Professor, Dept of Mathematics, NC State University, Raleigh, NC.
- 2013- Professor, Dept of Mathematics, NC State University, Raleigh, NC.

OTHER PROFESSIONAL AFFILIATIONS AND VISITING APPOINTMENTS

- 1994 (fall) Visiting Research Assistant, Courant Institute of Mathematical Sciences, New York University, New York, NY.
- 1996 (spring) Visiting Researcher, School of Mathematics, Australian Defense Force Academy, University of New South Wales, Canberra, ACT, Australia.
- 1996 (fall) Visiting Research Assistant, Courant Institute of Mathematical Sciences, New York University, New York, NY.
- 2001- Associate Faculty, Biomath Program, NC State University, Raleigh, NC.
- 2002- Associate Faculty, Department of Biomedical Engineering, NC State University, Raleigh, NC.

2009-2010 Visiting Professor, Department of Science Systems and Models, Roskilde University, Denmark.

PROFESSIONAL SOCIETIES

1. Society of Industrial and Applied Mathematics (SIAM)
2. Society of Mathematical Biology (SMB)
3. IEEE (EMBS)

HONORS AND AWARDS

1. IEEE TBME featured article: <http://tbme.embs.org/category/featured-articles/> (Paper by Matzuka, Mehlsen, Tran, Olufsen see details below)
2. Elected SAC committee MBI, 2014-2017.
3. Elected program director for SIAM Life Sciences for 2011-2012.
4. Outstanding Early Career Speaker, Redraider Minisymposium. *Mathematical and computational modeling of biological systems*, Texas Tech University, Nov 6-8, 2003.
5. Society for Industrial and Applied Mathematics (SIAM): Travel award for *International congress on industrial and applied mathematics, ICIAM*, Edinburgh, UK, Jul 5-9, 1999.
6. Traveling Fellowship for Mathematicians, a Danish fellowship covering all expenses for one year of studies abroad, 1995-1996.
7. Danish Academy of Technical Science Fellowship (EF# 501), 1994-1998. rferre1`22112534

PUBLICATIONS

Peer reviewed journal articles (submitted)

1. M.U. Qureshi¹, M. Colebank, M. Paun, A. Yarbrough, N. Chesler, M.A. Haider, N.A. Hill, D. Husmeier, M.S. Olufsen. *A comparative study of pulmonary hemodynamics in healthy and hypoxic mice*. Submitted, Biomech Model Mechanobiol (submitted), 2018.
2. M.V. Ciocanel, S.S. Docken, R.E. Gasper, C. Dean, B.E. Carlson, M.S. Olufsen. *Cardiovascular regulation in response to multiple hemorrhages - Analysis and parameter estimation*. Biological Cybernetics (submitted), 2018.
3. N.D. Williams, J. Mehlsen, M.S. Olufsen, H.T. Tran. *An Optimal Control Approach for Blood Pressure Regulation during Heat-Up Tilt*. Biological Cybernetics (submitted), 2018.
4. N.D. Williams, R. Brady, S. Gilmore, P. Gremaud, H.T. Tran, J.T. Ottesen, J. Mehlsen, M.S. Olufsen. *Cardiovascular dynamics during head-up tilt assessed via a pulsatile and non-pulsatile model*. J. Math Biol (submitted), 2018.
5. C. Haargaard-Olsen, J.T. Ottesen, R.C. Smith, M.S. Olufsen. *Parameter Subset Selection Techniques for Problems in Mathematical Biology*, Biological Cybernetics (submitted), 2018.
6. A.D. Marquis, A. Arnold, C. Dean-Bernhoft, B.E. Carlson, M.S. Olufsen. *Practical identifiability and uncertainty quantification of a Pulsatile Cardiovascular Model*. Math Biosci (submitted), 2017.

Peer reviewed journal articles

7. R. Brady, D.O. Frank-Ito, H.T. Tran, S. Janum, S.B. Pedersen, J.T. Ottesen, J. Mehlsen, M.S. Olufsen. *Mathematical modeling of endotoxin-induced inflammatory response in young men*. Math Modeling Natural Phenomena, accepted, 2018.
8. L.M. Paun, M.U. Qureshi, M. Colebank, N.A. Hill, M.S. Olufsen, M.A. Haider, D. Husmeier. *MCMC methods for inference in a mathematical model of pulmonary circulation*. Statistica Neerlandica, in Press, Stat Neerlandia, 2018.
9. M.U. Qureshi, M. Colebank, D. Schreier, D.M. Tabina, M.A. Haider, N.C. Chesler, M.S. Olufsen. *Characteristic impedance: frequency or time domain approach?* Physiological Measurements, 39(1):014004 2018.

10. E. O. Bangsgaard, P.G. Hjorth, M.S. Olufsen, J. Mehlsen, J.T. Ottesen. *Integrated Inflammatory Stress (ITIS) model*. Bull Math Biol, 79:1487-1509, 2017.
11. A. Mahdi, D. Nikolic, A.A. Birch, M.S. Olufsen, R.B. Panerai, S.J. Payne. Increased blood pressure variability upon standing up improves reproducibility of cerebral autoregulation indices. Med Eng Physics, 47:151-158, 2017.
12. A. Arnold, C. Battista, D. Bia, Y. Zocalo German, R.L. Armentano, H.T. Tran, M.S. Olufsen. EnKF based inflow estimator for a 1D arterial network. J Verification, Validation and UQ, 2(1), 011002 (Feb 22) 2017.
13. J. Sturdy, J.T. Ottesen, M.S. Olufsen. *Modeling the differentiation of A- and C- type firing patterns in rat aortic baroreceptor*. J Comp Neurosci, 42:11-30, 2016.
14. P. Lee, B.E. Carlson, N. Chesler, M.S. Olufsen, M.U. Qureshi, N.P. Smith, T. Sochi, D.A. Beard. *Heterogenous mechanics of mouse pulmonary arterial network*. Biomech Model Mechanobiol. 15:1245-1261, 2016. PMID: 26792789
15. C. Battista, D. Bia, Y. Zocalo, R.L. Armentano, M.A. Haider, M.S. Olufsen. *Wave propagation in a 1D fluid dynamics model validated using pressure-area measurements from ovine arteries*. J Mech Med Biol, 16:1650007 (26 pages), 2016.
16. B. Matzuka, J. Mehlsen, H.T. Tran, M.S. Olufsen. *Using Kalman filtering to predict time-varying parameters in a model predicting baroreflex regulation during head-up tilt*. IEEE Trans Biomed Eng, DOI: 10.1109/TBME.2015.2409211, 2015.
17. G. Mader, M.S. Olufsen, A. Mahdi. *Modeling cerebral blood flow velocity during orthostatic stress*. Ann Biomed Eng, 43(8):1748-1758, 2014.
18. J.T. Ottesen, J. Mehlsen, M.S. Olufsen. *Structural correlation method for model reduction and practical estimation of patient specific parameters illustrated on heart rate regulation*. Math Biosci, 257:50-59, 2014.
19. M.U. Qureshi, G.D.A. Vaughan, C. Sainsbury, M. Johnson, C.S. Peskin, M.S. Olufsen, N.A. Hill. *Numerical simulation of blood flow and pressure drop in the pulmonary arterial and venous circulation*, Biomech Model Mechanobiol, 13:1137-1154, 2014.
20. A. Mahdi, J. Sturdy, J.T. Ottesen, M.S. Olufsen, *Modeling the afferent dynamics of the baroreflex control system*, PLoS Computational Biology, December, 2013, DOI: 10.1371/journal.pcbi.1003384.
21. N.D. Williams, O. Wind-Willassen, REU Program, J. Mehlsen, J.T. Ottesen, M.S. Olufsen. *Patient specific modeling of head-up tilt*. Math Med Biol, 31(4): 365-392, 2014.
22. L.M. Ellwein, S.R. Pope, A. Xie, J.J. Batzel, C.T. Kelley, M.S. Olufsen MS. *Modeling cardiovascular and respiratory dynamics in congestive heart failure*. Math Biosci, 241:56-74, 2013.
23. M. Aoi, K. Hu, P. Zhao, M-T. Lo, M. Selim, M.S. Olufsen, V. Novak. *Impaired cerebral autoregulation associated with brain atrophy and worse functional status in chronic ischemic stroke*. PLoS ONE, 7(10):e46794, 2012.
24. M.S. Olufsen, N.A. Hill, G.A. Vaughan, C. Sainsbury, M. Johnson. *Simulation of rarefaction: impact on blood pressure in the systemic and pulmonary large and small arteries*. J Fluid Mech, 705:280-305, 2012.
25. J.T. Ottesen, M.S. Olufsen. *Functionality of the baroreceptor nerves in heart rate regulation*. Comp Meth Prog Biomed, 101(2):208-219, 2011.
26. B.N. Steele, D. Valdez-Jasso, M.A. Haider, M.S. Olufsen. *Predicting arterial flow and pressure dynamics using a 1D fluid dynamics model with a viscoelastic wall*. Siam J Appl Math. 71(4):1123-1143, 2011.
27. D. Valdez-Jasso, D. Bia, Y. Zocalo, R.L. Armentano, M.A. Haider, M.S. Olufsen. *Linear and nonlinear viscoelastic modeling of aorta and carotid pressure-area*. Ann Biomed Eng, 39(5):1438-1456, 2011.
28. D. Valdez-Jasso, H.T. Banks, M.A. Haider, D. Bia, Y. Zocalo, R.L. Armentano, M.S. Olufsen. *Viscoelastic models for passive arterial wall dynamics*, Adv Appl Math Mech, 1(2):151-165, 2009.
29. D. Valdez-Jasso, M.A. Haider, H.T. Banks, D. Bia, Y. Zocalo, R. Armentano, M.S. Olufsen. *Analysis of viscoelastic wall properties in ovine arteries*. Trans Biomed Eng, 56(2):210-219, 2009.

30. S.R. Pope, L.M. Ellwein, C.L. Zapata, V. Novak, C.T. Kelley, M.S. Olufsen. *Estimation and identification of parameters in a lumped cerebrovascular model*. Math Biosci Eng, 6:93-115, 2009.
31. K. Devault, P. Gremaud, V. Novak, M.S. Olufsen, G. Vernieres, P. Zhao. *Blood flow in the circle of Willis: modeling and calibration*. Multiscale Mod Simul, SIAM Int J, 7:888-909, 2008.
32. K.R. Fowler, G.A. Gray, M.S. Olufsen. *Modeling hear rate regulation, Part II: Parameter identification*, Cardiovasc Eng, 8:109-119, 2008.
33. L.M. Ellwein, H.T. Tran, C.L. Zapata, V. Novak, M.S. Olufsen. *Sensitivity analysis and model assessment: mathematical models for arterial blood flow and blood pressure*. Cardiovasc Eng, 8:94-108, 2008.
34. M.S. Olufsen, A.V. Alston, H.T. Tran, J.T. Ottesen, V. Novak. *Modeling heart rate regulation, Part I: Sit-to-stand versus head-up tilt*. Cardiovasc Eng, 8:73-87, 2008.
35. P. Bai, H.T. Banks, S. Dediu, A.Y. Govan, M. Last, A. Lloyd, H.K. Nguyen, M.S. Olufsen, G. Rempala, B.D. Slenning. *Stochastic and deterministic models for agricultural production networks*. Math Biosci Eng, 4:373-402, 2007.
36. B.N. Steele, M.S. Olufsen, and C.A. Taylor. *Fractal network model for simulating abdominal and lower extremity blood flow during resting and exercise conditions*. Comp Meth Biomech Biomed Eng, 10:39-51, 2007.
37. M.S. Olufsen, H.T. Tran, J.T. Ottesen, REU program, L.A. Lipsitz, V. Novak. *Modeling baroreflex regulation of heart rate during orthostatic stress*. Am J Physiol, 291:R1355-R1368, 2006.
38. D.H. Justice, H.J. Trussell, M.S. Olufsen. *Analysis of blood flow velocity and pressure signals using the multipulse method*. Math Biosci Eng, 3:419-440 2006.
39. M.S. Olufsen, J.T. Ottesen, H.T. Tran, L.M. Ellwein, L.A. Lipsitz, and V. Novak. *Blood Pressure and blood flow variation during postural change from sitting to standing - Mathematical modeling and experimental validation*. J Appl Physiol, 99:1523-1537, 2005.
40. M.S. Olufsen, H.T. Tran, and L.A. Lipsitz. *Modeling cerebral blood flow control during posture change from sitting to standing*. Cardiovasc Eng, 4:47-58, 2004.
41. M.S. Olufsen and A. Nadim. *On deriving lumped models for blood flow and pressure in the systemic arteries*. Math Biosci Eng, 1:61-80, 2004.
42. M.S. Olufsen, M.A. Whittington, M. Camperi, and N. Kopell. *New roles for the gamma rhythm: Population tuning and preprocessing*. J Comp Neurosci, 14:33-54, 2003.
43. M.S. Olufsen, A. Nadim, and L.A. Lipsitz. *Dynamics of cerebral blood flow regulation explained using a lumped parameter model*. Am J Physiol, 282:R611-R622, 2002.
44. M.S. Olufsen, L.A. Lipsitz, and A. Nadim. *A lumped parameter model for cerebral blood flow regulation*. Advances in Bioengineering, 51:277-278, 2001.
45. M.S. Olufsen, C.S. Peskin, W.Y. Kim, E.M. Pedersen, A. Nadim, and J. Larsen. *Numerical simulation and experimental validation of blood flow in arteries with structured-tree outflow conditions*. Ann Biomed Eng, 28:1281-1299, 2000.
46. M.S. Olufsen. *A one-dimensional fluid dynamic model of the systemic arteries*. Stud Health Technol Inform, 71:79-97, 2000.
47. M.S. Olufsen. *A structured tree outflow condition for blood flow in the large systemic arteries*. Am J Physiol, 276(1 PT 2):H257-H268, 1999.

Books and book chapters

48. J.T. Ottesen, V. Novak, M.S. Olufsen. *Development of patient specific cardiovascular models predicting dynamics in response to orthostatic stress challenges*. In Mathematical modeling and validation in physiology: Applications to the cardiovascular and respiratory systems. Lecture notes in mathematics 2064, mathematical biosciences subseries, J. Batzel, M. Bachar, F. Kappel (Eds), Springer Verlag, Berlin - Heidelberg, pp. 177-214, 2013.
49. J.K. Larsen, V. Andreasen, H. Larsen, M.S. Olufsen, J.T. Ottesen. Cardiovascular modelling at IMFUFA, in *The way through science and philosophy: Essays in honor of Stig Andur Pedersen*, H.B.

- Andersen, F.V. Christiansen, K.F. Jorgensen, V.F. Hendricks (Eds). Tributes Volume 4, College Publications, London, pp. 87-96, 2006.
50. J.T. Ottesen, M.S. Olufsen, and J.K Larsen. *Mathematical Models in Human Physiology*. SIAM, Philadelphia, 2004.
51. M.S. Olufsen. *A one-dimensional fluid dynamic model of the systemic arteries*. In Computational Modeling in Biological Fluid Dynamics, L.J. Fauchi and S. Gueron (eds), IMA Volumes in Mathematics and its Applications, 124:167-188, 2001.

Proceeding articles (peer reviewed)

52. L.M. Paun, M.U. Qureshi, M. Colebank, M.A. Haider, M.S. Olufsen, N.A. Hill, D. Huismeier. Parameter Inference in the Pulmonary Circulation of Mice. 32nd Int Workshop on Stat Model (IWSM) 2017 (6 pages).
53. M.U. Qureshi, M.A. Haider, N.C. Chesler, M.S. Olufsen. Simulating the effects of hypoxia on pulmonary hemodynamics in mice. Proc 5th Int Conf Comp Math Biomed Eng (CMBE) 2017. (4 pages).
54. R. Brady, C. Pulez, I Ramirez, K. Larripa, M.S. Olufsen. A coupled model exploring the cardiovascular response to an acute inflammatory event. Proc 5th Int Conf Comp Math Biomed Eng (CMBE) 2017. (4 pages).
55. A. Mahdi, M.S. Olufsen, S.J. Payne. Mathematical model of the interaction between baroreflex and cerebral autoregulation. Proc 4th Int conf on Comp Math Biomed Eng, EMBS, 2015.
56. C. Battista, A. Arnold, M.U. Qureshi, M.S. Olufsen. Estimating boundary conditions for one-dimensional modeling of blood flow and pressure in arterial networks. Submitted, Proc 4th Int conf on Comp Math Biomed Eng, EMBS, 2015.
57. A.A. Wright, A. Mahdi, M.S. Olufsen. Closed loop baroreflex regulation of blood flow in the cardiovascular system. Proc 3rd Int Conf Comp Math Biomed Eng, CMBE, 2013.
58. N. Williams, H.T. Tran, M.S. Olufsen. *Cardiovascular dynamics during head-up tilt assessed via pulsatile and non-pulsatile modeling*. Proc 3rd Int conf on simulation and modeling methodologies, technologies and applications, SciTePress, Sci Technol Pub, 2013.
59. C.H. Olsen, J. Mehlsen, J.T. Ottesen, H.T. Tran, M.S. Olufsen. *Global sensitivity and identifiability analysis applied to a model predicting baroreflex regulation during head-up tilt*. Proc The 1st international workshop on innovative simulation for healthcare, I-WISH. W. Backfrieder, A. Bruzzone, F. Longo, V. Novak, J. Rosen (eds), Rende (CS), Italy, pp. 81-86, 2012.
60. N. Williams, H.T. Tran, M.S. Olufsen. An optimal control approach to modeling head-up tilt. Proc The 2nd international workshop on innovative simulation for healthcare, I-WISH. W. Backfrieder, A. Bruzzone, F. Longo, V. Novak, J. Rosen (eds), Rende (CS), Italy, 2012.
61. B. Matzuka, J. Mehlsen, M.S. Olufsen, H.T. Tran, N.D. Williams. *A Kalman filtering based approach for the modeling of the cardiovascular regulation system*. Proc The 1st international workshop on innovative simulation for healthcare, I-WISH. W. Backfrieder, A. Bruzzone, F. Longo, V. Novak, J. Rosen (eds), Rende (CS), Italy, pp. 107-112, 2012.
62. A. Mahdi, J.T. Ottesen, M.S. Olufsen. *Qualitative features of a new baroreceptor model*. Proc The 1st international workshop on innovative simulation for healthcare, I-WISH. W. Backfrieder, A. Bruzzone, F. Longo, V. Novak, J. Rosen (eds), Rende (CS), Italy, pp. 75-80, 2012.
63. J.T. Ottesen, M.S. Olufsen. *Structural correlation method for practical estimation of patient specific parameters in heart rate regulation*. Proc The 1st international workshop on innovative simulation for

- healthcare, I-WISH. W. Backfrieder, A. Bruzzone, F. Longo, V. Novak, J. Rosen (eds), Rende (CS), Italy, pp. 136-143, 2012.
64. M.S. Olufsen, M.A. Haider, C. Battista, B.N. Steele. *One-dimensional modeling of blood flow in viscoelastic arteries*. Proc ECOMAS, Vienna, Austria. 2 pages, 2012.
 65. M.S. Olufsen, B. Smith, J. Mehlsen, J. Ottesen. *The impact of gravity during head-up tilt*. Conf Proc IEEE Eng Med Biol Soc. DOI 10.1109/IEMBS.2011.6090669, pages 2399-2402, 2011.
 66. J.J. Batzel, L.M. Ellwein, M.S. Olufsen. *Modeling the single breath CO₂ test in patients with congestive heart failure*. Conf Proc IEEE Eng Med Biol Soc.. DOI 10.1109/IEMBS.2011.6090673, pages 2418-2421, 2011.
 67. M.C. Aoi, B. Matzuka, M.S. Olufsen. *Toward online, noninvasive, nonlinear assessment of cerebral autoregulation*. Conf Proc IEEE Eng Med Biol Soc. DOI 10.1109/IEMBS.2011/5090671, pages 2410-2413, 2011.
 68. D. Valdez-Jasso, D. Bia, MA Haider, Y. Zocalo, R.L. Armentano, M.S. Olufsen. *Linear and nonlinear viscoelastic modeling of ovine aortic biomechanical properties under in-vivo and ex-vivo conditions*. Conf Proc IEEE Eng Med Biol Soc. DOI 10.1109/IEMBS.2010.5626563, pages 2634-2637, 2010.
 69. M.C. Aoi, C.T. Kelley, V. Novak, M.S. Olufsen. *Optimization of a mathematical model of cerebral autoregulation using patient data*, 7th IFAC Symp Modelling and Control in Biomedical Systems, Volume 7, Part 1, DOI 10.3182/20090812-3-DK-2006.00031, pages 181-186, 2010.
 70. J.T. Ottesen, M.S. Olufsen. *On the track of syncope induced by orthostatic stress - feedback mechanisms regulating the cardiovascular system*. 7th IFAC Symp Modelling and Control in Biomedical Systems, Volume 7, Part 1, DOI: 10.3182/20090812-3-DK-2006.00032, pages 187-191, 2010.
 71. M.C. Aoi, P. Gremaud, H.T. Tran, V. Novak, M.S. Olufsen. *Modeling cerebral blood flow and regulation*. Conf Proc IEEE Eng Med Biol Soc. DOI 10.1109/IEMBS.2009.5334057, pages 5470-5473, 2009.
 72. D. Valdez-Jasso, M.A. Haider, S.L. Campbell, D. Bia, Y. Zocalo, R.L. Armentano, M.S. Olufsen. *Modeling viscoelastic wall properties of ovine arteries*. Proc ASME 2009, Summer Bioeng Conf, SBC2009-205640, 2009.
 73. D.H. Justice, H.J. Trussell, and M.S. Olufsen. *Using speech processing methods to model blood flow signals*. Proc European Signal Processing Conference (EUSIPCO), 2005.
 74. D.H. Justice, H.J. Trussell, and M.S. Olufsen. *Modeling of blood flow velocity and pressure signals using the multipulse method*. Proc IEEE Digital Signal Processing Workshop, pages DOI 10.1109/DSPWS.2004.1437967, pages 320-324, 2004.
 75. M.S. Olufsen and A. Nadim. *Lumped models for blood flow and pressure in the systemic arteries*. Proc MIT conf Comp Fluid and Solid Mech, K.J. Bathe (ed). Elsevier Science, 2:1786-1789, 2003.
 76. M.S. Olufsen, A. Nadim, and L. Lipsitz. *Autoregulation of cerebral blood flow*. Proc IEEE Ann Northeast Bioeng Conf, 41-42, 2000.
 77. M.S. Olufsen and J.T. Ottesen. *Outflow conditions in human arterial flow*. In Computer simulations in biomedicine, Proc Third Int Conf Comput Simul Biomed, Biomed '95. H. Power, R.T. Hart (eds). Computational Mechanics Publications, 249-256, 1995.

Other

78. J. Batzel, V. Novak, F. Kappel, M.S. Olufsen, H.T. Tran. *Introduction to the special issue: short-term cardiovascular-respiratory control mechanisms*, *Cardiovasc Eng*, 8(1):1-4 2008.
79. C. Yang (work with R. Levy, M.S. Olufsen, T. Witelski, T). *Modeling effects of aging on blood flow and pressure in the arterial system*, *Vertices, Duke Uni J Sci Technol*, 23:6-15, 2006.

PRESENTATIONS**Conference and Workshop Research Presentations (Invited)**

1. Workshop on Waves in Neural Media, The Fields Institute, Sep 5-8, 2017. Invited speaker.
2. Computational & Mathematical Biomedical Engineering (CMBE) conference, University of Pittsburgh, April 10-12, 2017. Invited speaker.
3. Parameter Estimation and Uncertainty Quantification for Dynamical Systems, University of Pittsburgh, Mar 5-6, 2017. Invited speaker.
4. Joint Math Meeting (JMM), Atlanta, Jan 4-7, 2017. Invited to speak in MRC session.
5. SIAM Life Sciences, Boston, MA, Jul 11-14th, 2016. Invited to speak in special session celebrating Peskin's 70 birthday.
6. AMS Fall Sectional Meeting, Memphis, TN, Oct 17-18, 2015. Invited plenary speaker.
7. NCSB Annual Meeting, Albuquerque, NM, Jul 9-10, 2015. Invited lightening talk and poster presenter.
8. 4th Int Conf Comp & Math Biomed Eng (CMBE), Paris, France, June 29-Jul 1st, 2015. Invited speaker.
9. SAMSI workshop. Uncertainties in computational hemodynamics, June 1-3, 2015. Invited speaker.
10. 7th World congress of Biomechanics, Boston, MA, July 6-11, 2014. Invited minisymposium speaker.
11. VPR P50 Site Visit, University of Michigan, Ann Arbor, MI. July 29th, 2014. Invited speaker.
12. MBI current topics workshop, Molecular systems to physiology, May 5-9, 2014. Invited speaker.
13. ICERM workshop, Brown University. From the clinic to partial differential equations and back: Emerging challenges for cardiovascular mathematics, Jan 20-24, 2014. Invited speaker.
14. 12th US National Congress on Comp Mechanics (USNCCM12), Raleigh, NC, July 22-25th, 2013. Invited minisymposium speaker.
15. Virtual Rat Physiology, Advisory board meeting, Milwaukee, July 26-27, 2012. Invited speaker.
16. International workshop on innovative simulation for healthcare (IWISH), Vienna, Austria, Sep 2012. Invited track speaker.
17. ECCOMAS 2012, Vienna, Austria, Sep 2012. Invited symposium speaker.
18. TJP fest. Conference in the honor of Tim Pedley's 70 Birthday, Cambridge, UK, April 2012. Invited speaker.
19. EMBC 2011, Boston, MA, Aug 2011. Invited symposium speaker.
20. World congress on computational and mathematical modeling of cardiovascular cardiopulmonary dynamics. William & Mary, Williamsburg, VA, May 2011. Invited speaker.
21. SCOPE academy, NCSU, Apr 2011. Invited speaker.
22. 2010 Fall southeastern sectional meeting, Richmond, VA, Nov 2010. Invited speaker, special session on mathematical models in biology and medicine.
23. NHLBI/VCU workshop on modeling/simulation of neural control of the cardiovascular/ cardiopulmonary system, Richmond, VA, Mar 2010. Invited speaker.
24. 9th Int symposium on computer methods in biomechanics and biomedical engineering, Valencia, Spain, Feb 2010. Invited symposium speaker.
25. 7th IFAC symposium on modeling and control in biomedical systems, Aalborg, Denmark, Aug 2009. Invited speaker.
26. 2009 Spring southeastern section meeting, Raleigh, NC, Apr 2009. Invited minisymposium speaker.
27. AMS southeast sectional meeting, Raleigh, NC, Apr 2009. Invited symposium speaker.

28. NIH-NHLBI workshop on computational and Mathematical modeling applications in cardiovascular dynamics, VCU, Richmond, VA, Mar 2008. Invited to give two-hour lecture on blood flow modeling.
29. ICIAM 2007, Zurich, Zwitzerland, Jul 2007. Invited minisymposium speaker.
30. Applications of analysis to math biology. A conference in honor of Michael C. Reed, Duke University, Searle Conference Center, Durham, NC, May 2007. Invited speaker.
31. Workshop on blood flow in the microcirculation: function, regulation, and adaptation. MBI, The Ohio State University, Columbus, OH, Jan 2007. Invited speaker.
32. Meeting in the honor of Charles Peskin's 60th birthday, Courant Institute, NYU, New York, NY, Oct 2006. Invited speaker.
33. Sarajevo summer school. Mathematical techniques in modeling physiological systems, Sarajevo, Bosnia, Sep 2006. Invited to teach a module on model analysis.
34. Pulmonary circulation workshop, VCU, Richmond, VA, Jun 2006. Invited plenary speaker. Experimental biology, San Fransisco, Apr 2006. Invited symposium speaker, symposium on trends in experimental pathology sponsored by Robert E. Stowell.
35. Mini-invasive procedures in medicine and surgery: Mathematical and numerical challenges. CRM workshop, Montreal, Canada, May 2005. Invited to present a one-hour lecture.
36. Redraider minisymposium. Mathematical and computational modeling of biological systems, Texas Tech University, Austin, TX, Nov 2003. Outstanding early career speaker, intived to give one-hour lecture.
37. AMS fall southeastern meeting, Chapel Hill, NC, Oct 2003. Invited minisymposium speaker.
38. 2nd MIT conference on computational fluid and solid mechanics, Boston, MA, Jun 2003. Invited minisymposium speaker.
39. 5th Conference on mathematical modeling & computing in biology and medicine, Milan, Italy, Jul 2002. Invited minisymposium speaker.
40. BMES annul fall meeting, Durham, NC, Nov 2001. Invited minisymposium speaker.
41. IEEE 26th annual northeast bioengineering conference, University of Conneticut, Storres, CT, Aprl 2001. Invited minisymposium speaker.
42. Workshop on bio-medical simulation, CRS4, Calgary, Italy, June 1997. Invited speaker.

Conference and workshop research presentations (Organized minisymposia and speaker)

43. SMB annual meeting, organized mini-symposium on transport and control in systems physiology and gave a presentation. July 17-20, 2017
44. Tutorial Workshop on Parameter Estimation for Biological Models, NC State University, July 28-31, 2016. Research presentation.
45. SIAM Life Sciences, Boston, MA, Jul 11-14th, 2016. Organized minisymposium with three parts.
46. Mathematical Research Community (AMS) workshop "Mathematics in Physiology and Medicine", Snowbird, Utah, June 19-25, 2016. Organized workshop.
47. Tutorial Workshop on Parameter Estimation for Biological Models, NC State University, Aug 8-11, 2014. Research presentation.
48. SIAM life sciences, Charlotte, NC. Aug 4-7, 2014. Organized minisymposium and speaker.
49. SIAM life sciences, San Diego, CA, Aug 2012. Organized minisymposium and speaker.
50. ICIAM 2011, Vancouver, Canada, July 2011. Organized minisymposium and speaker.
51. 8th European conference on mathematical and theoretical biology, Krakow, Poland, June 2011. Organized minisymposium and speaker.
52. SIAM life sciences, Pittsburgh, PA, July 2010. Organized minisymposium and speaker.

53. SIAM computational science and engineering, Miami, FL, Mar 2009. Organized minisymposium and speaker.
54. SIAM life sciences, Montreal, Canada, Aug 2008. Organized minisymposium and speaker.
55. BMES annual fall meeting, Los Angeles, CA, Sep 2007. Organized preconference workshop and minisymposium. Gave two invited presentations.
56. Dynamics of blood flow models and experiments, Workshop SAMSI, RTP, NC, May 2007. Organized workshop.
57. SIAM life sciences, Raleigh, NC, Jul 2006. Organized minisymposium and speaker.
58. SIAM annual meeting, New Orleans, LA, Jul 2005. Organized minisymposia and speaker.
59. SIAM life sciences, Portland, OR, Jul 2004. Organized minisymposium and speaker.
60. ICIAM 2003, Sydney, Australia, Jul 2004. Organized minisymposium and speaker, Jul 2004.
61. SIAM life sciences, Boston, MA, Mar 2002. Organized minisymposium and speaker.
62. ICIAM 1999, Edingburgh, Scotland, July 1999. Organized a minisymposium and speaker.

Conference and workshop research Presentations (Contributed)

63. 4th World congress of biomechanics, Calgary, Canada, Aug 2002. Presented a contributed talk and was invited to chair a session.
64. ASME international mechanical engineering congress & exposition, New York, NY, Nov 2001. Contributed talk.
65. 5th International conference on cognitive and neural systems, Boston, MA, May 2001. Contributed poster.
66. Society for neuroscience annual meeting, New Orleans, LA, Nov 2000. Presented a contributed poster.
67. Workshop on computational modeling in biological fluid dynamics, IMA, Minneapolis, MN, Jan 1999. Contributed poster.
68. APS division of fluid dynamics, 51st annual meeting, Philadelphia, PA, Nov 1998. Contributed talk.
69. 3rd World congress of biomechanics, Sapporo, Japan, Aug 1998. Contributed talk.
70. 1st topical meeting on biophysics and biological Physics, Niels Bohr Institute, Denmark, Mar 1998. Contributed talk.
71. International conference on mathematical modeling in medicine, IMFUFA, Roskilde University, Denmark, Sep 1997. Contributed talk.
72. World congress on medical physics and biomedical engineering, Nice, France, Sep 1997. Contributed talk.
73. 1st workshop on industrial mathematics for nordic PhD students, Hillerod, Denmark, Aug 1997. Contributed talk.
74. Anziam graduate student day, Australian Defense Force Academy, University of New South Wales, Canberra, Australia, Oct 1995. Contributed talk.
75. 3rd International conference for simulations in biomedicine, Biomed '95, Milan, Italy, Jun 1995. Contributed talk.

Seminars and Colloquia (invited)

76. Biomathematics Colloquium, University of Tennessee, Knoxville, TN UTK, Feb 2018.
77. Department Colloquium, New Jersey Institute of Technology NJIT, Dec 2017.
78. Department Seminar, Department of Mathematics, Creighton University, Omaha, NE, Oct 2017.
79. Mathematical Biology Seminar, presentation for REU program, Department of mathematics, Duke

- University, Jun 2017.
80. Biomath Seminar, Department of Mathematics, Virginia Commonwealth University, Feb 2017.
 81. Journal Club on Parameter Estimation (Tutorial), Department of Mathematics Virginia Commonwealth University, Feb 2017.
 82. SoFTMech Seminar, Department of Mathematics, University of Glasgow, UK, Sep 2016.
 83. Department of Mathematics Colloquium, University of Colorado, Colorado Springs, Feb 2016.
 84. Mathematics Department Colloquium, IUPUI, Feb 2014.
 85. Mathematical Biology Seminar, presentation for REU program, Department of mathematics, Duke University, Jun 2013.
 86. Numerical Analysis Seminar, NC State University, Feb 2013.
 87. Differential Equations Seminar, NC State University, Jan 2013.
 88. Seminar, Center for Computational Science, Tulane University, Nov 2012.
 89. Seminar, Department of Physiology, Kings College, London, UK, Apr 2012.
 90. Differential equations seminar, Department of Mathematics, NCSU, Jan 2012.
 91. Applied mathematics seminar, Department of Mathematics, University of Delaware, Newark, Delaware, Dec 2011.
 92. Mathematics colloquium, University of North Carolina, Charlotte, NC, Oct 2011.
 93. Seminar, Department of Mathematics, Rochester Institute of Technology (RIT), Rochester, NY, Oct 2011.
 94. Seminar, Institute of Computational and Engineering Science and Engineering (ICASE), University of Texas, Austin, TX, Nov 2010.
 95. Seminar, Department of Mathematics, University of Glasgow, Glasgow, Scotland, Mar 2010.
 96. Seminar, Department of Mathematics and Physics, Roskilde University, Denmark, Oct 2009.
 97. Seminar, School of Mathematics, University of Graz, Austria, Mar 2009.
 98. Numerical analysis seminar, Department of Mathematics, NCSU, Dec 2008.
 99. Numerical analysis seminar, Department of Mathematics, UNC Chapel Hill, NC, Jan 2008.
 100. Seminar, Merck Inc, Whitehouse Station, NJ, July 2007.
 101. Seminar, MBI, The Ohio State University, Columbus, OH, Feb 2006.
 102. Seminar, Department of Mechanical Engineering, Imperial College, London, UK, Dec 2005.
 103. Seminar, Division of Health Sciences and Technology, MIT, Cambridge, MA, Sep 2005.
 104. Numerical analysis seminar, Department of Mathematics, NCSU, Aug 2005.
 105. Seminar, Department of Anesthesiology, Mayo Clinic, Jacksonville, FL, Jun 2005.
 106. Special topics course in biomathematics, Department of Mathematics and Physics, Roskilde University, Denmark, Mar 2005.
 107. Physics colloquium, Department of Physics, UNC Wilmington, NC, Feb 2005.
 108. HHMI lecture, Meredith College, Raleigh, NC, Nov 2004.
 109. AWM seminar, Department of Mathematics, Duke University, Durham, NC, Apr 2004.
 110. Seminar, Department of Mathematics and Physics, Roskilde University, Denmark, Mar 2004.
 111. HHMI lecture, Salem College, Winston Salem, NC, Dec 2004.
 112. Seminar, Department of Electrical and Computer Engineering, NCSU, Raleigh, NC, Sep 2003.
 113. PDE/Applied math seminar, Department of Mathematics, University of Houston, TX, Nov 2002.
 114. Applied mathematics seminar, Department of Mathematics, UNC Chapel Hill, NC, Sep 2002.
 115. Seminar, Istituto per le Applicazioni del Calcolo – CNR Viale del Policlinico, Rome, Italy, Jul 2002.
 116. Seminar, Keck Graduate Institute, Claremont Colleges, Claremont, CA, Jun 2002.

117. Differential equations seminar, Department of Mathematics, NCSU, Raleigh, NC, Nov 2001.
118. Numerical Analysis Seminar, Department of Mathematics, NCSU, Oct 2001.
119. Neuroscience seminar, Boston University, Boston, MA, Apr 2000.
120. Research in progress seminar, Research and Training Institute, Hebrew Rehabilitation Center for Aged, Boston, MA, Nov 1999.
121. Fluid mechanics seminar, Department of Mechanical Engineering, MIT, Cambridge MA, Nov 1999.
122. Center for BioDynamics seminar, Department of Mathematics, Boston University, Boston, MA, Feb 1999.
123. Brown bag seminar, Department of Aerospace and Mechanical Engineering, Boston University, Boston, MA, Jan 1999.
124. Graduate student seminar, Department of Mathematics, Duke University, Durham, NC, Apr 1998.
125. Mathematics seminar, Department of Mathematics, Australian Defense Force Academy, University of New South Wales, Canberra, Australia, Aug 1995.

FUNDING

Pending

Proposal #: NSF/DMS 185711. Award requested: \$741,198

Period: 08/01/18 – 07/31/21

Funding agency: National Science Foundation

Investigators: M.S. Olufsen (PI), H.T. Tran (co-PI), J. Mehlsen (co-PI)

Title: Cardiovascular regulation: modeling, analysis, and applications to autonomic dysfunction in HPV vaccinated girls

Proposal: NSF/Simons Research Centers for Mathematics of Complex Biological Systems (MathBioSys)

Award requested (\$10,000,000)

Period: 08/01/18 – 7/31/2023

Funding agency: National Science Foundation/Simons Foundation

Investigators: Alun Lloyd (PI)

Initiated assembling team of biologists and mathematicians for this proposal. Including setting up seminar with biologists presenting potential projects. Wrote a sub-project for the proposal.

Active

Award: \$430,000

Period: 08/01/2016 – 07/31/2019

Funding agency: National Science Foundation (NSF)

Investigators: M.S. Olufsen (PI), M.A. Haider (co-PI), M.U. Qureshi (co-PI)

Title: Remodeling of Pulmonary Cardiovascular Networks in the Presence of Hypertension

Award: \$100,000

Period: 01/01/16 – 12/31/17

Funding agency: National Science Foundation

Investigators: P. Gremaud (PI), M.S. Olufsen (co-PI), J. Mehlsen (co-PI)

Title: QuBBD: Classification and clustering of medical time series data: the example of syncope

Award: \$2,500,000

Period: 07/01/2013 – 06/30/2018

Funding agency: National Science Foundation (NSF)

Investigators: A. Lloyd (PI), M.S. Olufsen, K. Gross, H.T. Tran, H.T. Banks (Co-PIs)

Title: *RTG: Parameter estimation methodologies for mechanistic biological models*

Previous funding

Award: \$49,302 + \$7,375 (extension)

Period: 08/15/2015 – 08/14/2017

Funding agency: Delta (NCSU)

Investigators: M. Fenn (PI), A. Lloyd (co-PI), M.S. Olufsen (Co-PI)

Title: *DELTA Critical Path Redesign Grant for MA 231: Calculus for Life and Social Sciences B*

Award \$668,868

Award period: 08/15/11 - 08/14/17

Funding agency: National Institute of Health (NIH)

Investigators: M.S. Olufsen (PI-subcontract), D. Beard, Wisconsin Medical College (Center-PI)

Title: *The virtual physiological rat (VPR) center for the study of physiology and genomics*

Award \$350,000

Award period: 09/01/11 – 09/30/16

Funding agency: National Science Foundation (NSF)

Investigators: M.S. Olufsen (PI) and M.A. Haider (Co-PI)

Title: *Arterial wall viscoelasticity and cardiovascular networks*

Award: \$250,000

Award period 10/01/10 – 09/30/15

Funding agency: National Science Foundation (NSF)

Investigators: M.S. Olufsen (PI) and H.T. Tran (Co-PI)

Title: *Modeling autonomic regulation of the cardiovascular system*

Award: \$12,000 (travel)

Period: 01/01/2011– 12/31/012

Funding agency: Snedkermester Sophus Jacobsen og hustru Astrid Jacobsens Fond (Danish Foundation)

Investigators: J.T. Ottesen, Roskilde University, Denmark (PI), M.S. Olufsen (Co-PI)

Title: *Modeling of the autonomic control system*

Award: \$60,000

Award period 07/15/2009 – 07/14/2010

Funding agency: Villum Kann Rasmussen Foundation (Danish Foundation)

Investigators: M. Pedersen (PI), M.S. Olufsen (Co-PI), J.T. Ottesen (Co-PI)

Title: *Modeling cardiovascular control dynamics in syncope*

Award: \$13,000 (travel)

Period: 01/01/2010– 12/31/011

Funding agency: Snedkermester Sophus Jacobsen og hustru Astrid Jacobsens Fond (Danish Foundation)

Investigators: J.T. Ottesen, Roskilde University, Denmark (PI), M.S. Olufsen (Co-PI)

Title: *Mathematical modeling of mechanisms underlying syncope*

Award: #221,050

Period: 09/15/2006 – 09/14/2009

Funding agency: NSF/DMS Mathematical Biology

Investigators: M.S. Olufsen (PI), P. Gremaud (Co-PI), H.T. Tran (Co-PI)

Title: *Modeling autoregulation and blood flow in the cerebral vasculature*

Award: \$34,380

Award period 09/01/2004 – 03/31/2009

Funding agency: NSF/OISE Office of International Science and Engineering

Investigators: M.S. Olufsen (PI), H.T. Tran (Co-PI)

Title: *US Austria-Denmark cooperative research: modeling and control of the cardiovascular-respiratory system*

Award: \$73,250

Award period 01/01/2002 - 06/31/2003

Funding agency: AIM: American Institute of Mathematics

Investigators: M.S. Olufsen (PI), F. Kappel (Co-I), V. Novak (Co-I), and H.T. Tran (Co-I)

Title: *Short-term cardiovascular-respiratory control mechanisms: modeling, analysis, and clinical*

Award: \$73,250

Award period 01/01/2002 - 06/31/2003

Funding agency: National Institute of Health (NIH) – National Institute of Aging

Investigators: M.S. Olufsen (PI) and L.A. Lipsitz (Co-I)

Title: *Cerebral blood flow model for normo/hypertensive elderly*

Award: \$5,000

Award period: 01/15/2002 - 01/14/200

Funding agency: NCSU Faculty Research & Professional Development Fund

Title: *Dynamics of cerebral blood flow in healthy/hypertensive elderly*

MENTORING

Postdocs

1. Umar Qureshi, Sep 2014 – present (VPR/NSF postdoc)
2. Andrea Arnold, Aug 2014 – May 2017, RTG postdoc
3. Adam Mahdi, Jan 2012 – May 2014 (VPR postdoc), Fellow, Inst of Biomed Eng, University of Oxford, UK.

Current graduate students

4. Amanda Colunga, PhD Student, Applied Mathematics, expected graduation, May 2023
5. Steven Gilmore, PhD Student, Applied Mathematics, expected graduation, May 2022
6. Mitchel Colebank, PhD Student, Biomathematics, expected graduation, May 2021
7. Benjamin Randall, PhD Student, Applied Mathematics, expected graduation, May 2019
8. Andrew Wright, PhD student, BioMathematics, expected graduation, May 2018

Former graduate students (PhD)

9. Renee Brady, PhD Applied Mathematics, July 2017. Postdoc Moffitt Cancer Center, Tampla FL.
10. Greg Mader, PhD BioMathematics, Dec 2016. Researcher Research Triangle Institute, RTP.
11. Christina Battista, PhD Applied Mathematics, Aug 2015. (co-advised with Mansoor Haider). Postdoc UNC-Chapel Hill, NC.
12. Christian Haargaard Olsen, PhD BioMathematics, December 2014 (co-advised with Hien Tran). Senior Statistical Programmer, Novo Nordic, Denmark.
13. Nakeya Williams, PhD Applied Mathematics May 2014 (co-advised with Hien Tran). Assistant Professor, US Military Academy, Westpoint, NY.
14. Mikio Aoi, PhD BioMathematics, Aug 2011. Postdoc Neuroscience, Princeton University, NJ.
15. Daniela Valdez, PhD BioMathematics, Aug 2010 (co-advised with Mansoor Haider). Assistant Professor, Biomedical Engineering, UC Santa Barbara, CA.
16. April Allston, PhD Applied Mathematics, Aug 2009 (co-advised with Hien Tran). SAS, Cary, NC.
17. Laura M. Ellwein, PhD Applied Mathematics, Aug 2008. Assistant Professor, Mathematics, VCU.

Former graduate students (MS)

18. Marshal Davey, MS Physiology, May 2017. Research assistant UNC Chapel Hill.
19. Francis Polakiewicz, MS BioMathematics, May 2016, EPA, RTP, NC.
20. Michael Frank, MS BioMathematics, May 2016.
21. Jacob Sturdy, MS BioMathematics, Dec 2014. PhD Student University of Trondheim, Norway.
22. Anna Hart, MS Applied Mathematics, Dec 2006.
23. Cynthia Chmielewski, MS BioMathematics, Aug 2003.

Undergraduate students

1. Derek Justice, BS in Electrical Engineering, NCSU, May 2003.
2. David Hysom, BS in Mathematics, NCSU, Dec 2003.
3. Mark Harris, BS in Mathematics and Physics, NCSU, May 2004.
4. Chr Valdez, BS in Applied Mathematics, NCSU, May 2005.
5. David Robinson, BS/MS in Mathematics and Statistics, NCSU, May 2006.
6. REU 2005-2015: ~4 students per year.
7. Eamon Tweedy, BS in Applied Mathematics, NCSU, May 2006.
8. Sato Ito, BS in Applied Mathematics NCSU, May 2010.
9. Brittany Smith, BS in Mathematics NCSU, Jan 2012.
10. David Moreau, BS in Mathematics NCSU, May 2013.
11. Andrew Wright, BS in Applied Mathematics NCSU, May 2013.
12. Paul Brockington, BS in Applied Mathematics NCSU, May 2015.
13. Steven Gilmore, BS in Applied Mathematics NCSU, May 2015.
14. Samantha Faber, BS in Mathematics NCSU, May 2015.

15. Daniel Bullock, BS in Biology NCSU, May 2015.
16. Andrew Marquis, BS Applied Mathematics, NCSU, May 2016.
17. Anna Yarbrough, Applied Mathematics, NCSU, expected graduation May 2018
18. Payton Nichols, Mathematics, NCSU, expected graduation May 2019

SERVICE

NCSU

1. Organizer Tutorial Workshop on Parameter Estimation for Biological Models, NC State University, July, 2014, 2016, 2018
2. Faculty mentor, REU and RTG summer programs 2005-2018
3. Faculty mentor, mathematical modeling workshops at NCSU, 2004-2009 co-organizer, 2002, 2004-2006.
4. Lectures SUM series and first year seminars (2009-2018)
5. Co-organizer Biomathematics Seminar (2005-present)
6. Wrote promotion recommendations for tenure (10), full professor (3), and many recommendation letters for students and postdocs
7. Committees:
 - Standing Committees:*
 - a. RPT committee (2015-present)
 - b. TA workload committee (2018-present)
 - c. Colloquium committee (2017-present)
 - d. Undergraduate assessment (200xx-present)
 - e. Undergraduate assessment committee (2014-present)
 - f. Graduate recruitment mathematics and biomathematics and committee (2002-present)
 - g. Undergraduate recruitment committee (2004-2006)
 - Hiring Committees:*
 - h. General department of mathematics hiring committee (2005-2006)
 - i. Departmental postdoctoral hiring committee (2011-2012)
 - j. RTG postdoc hiring (2014-present)
 - Ad-hoc Committees:*
 - k. Mathematics department evaluation committee (2008-2009)
 - l. Building committee (2003-2004)
 - Seminar Organizer:*
 - m. Biomathematics seminar (organizer: 2002-2004 and 2006-2008 and 2014-present)
8. Invited to talk at the PAMS alumni SCOPE academy (2011)
9. Organized SAMSI workshop on dynamics of blood flow models and experiments (2007)
10. Organized biomathematics seminar (2002-2004 and 2006-2008)
11. Group leader SAMSI working group on agricultural systems under the program on national defense and homeland security (2005-2006)
12. HHMI lectures organized by the Science House. Department of Mathematics, Meredith College, Raleigh, NC. November (2004) and Salem College, Winston Salem, NC. December (2004).
13. Mentored HHMI-RISE incoming student (2004). Organized by the Science House.

Externally

14. Co-organizer workshop 3 - control of disease, Mathematical Biosciences Institute, Oct 2017.
15. Co-organizer emphasis semester on control in biology and medicine, Mathematical Biosciences Institute, Fall 2017
16. Mathematical Research Community (AMS) workshop “Mathematics in Physiology and Medicine”, Snowbird, Utah, June 19-25, 2016. Organized workshop
17. Main organizer SIAM Life Sciences, Charlotte, 2012 and 2014.
18. Organizer MBI workshop: Molecular to systems physiology, May 2014
19. Track organizer, International Workshop on Innovative Simulation for Healthcare, 2012-2014
20. World congress on computational and mathematical modeling of cardiovascular cardiopulmonary dynamics, Member of the scientific program committee, May 2011
21. Scientific program committee, NHLBI-VCU World Congress on Computational and Mathematical Modeling of Cardiovascular and Cardiopulmonary Dynamics, 2011. William & Mary, Williamsburg, VA
22. Co-organizer, MBI workshop: Computational challenges in integrative biological modeling, Oct 2009
23. Workshop organizer: Short-term Cardiovascular-Respiratory Control Mechanisms, sponsored by AIM, Oct 2006
24. Group leader for the agricultural systems working group. Program on national defense and homeland security (NDHS), SAMSI 2005-2006
25. Cardiac modeling workshop, Department of Mathematics, Roskilde University, Denmark. Organized workshop, May 1998

Review activities

- Guest editor, Biological Cybernetics Special Issue (2017-Present)
- Editorial board, Mathematical Biosciences and Engineering (2007-Present)
- Reviewed manuscripts for
 - American Journal of Physiology
 - Annals of Biomedical Engineering
 - Autonomic Neuroscience: Basic and Clinical, Cardiovascular Engineering
 - Bulletin of Mathematical Biology
 - Cell Biochemistry and Biophysics
 - Computational Methods in Applied Mechanics
 - Computer Methods in Biomechanics and Biomedical Engineering
 - IEEE Transactions of Biomedical Engineering
 - Journal of Biomechanics
 - Journal of Biomedical Engineering
 - Journal of Computational Neuroscience
 - Journal of Engineering Mathematics
 - Journal of Fluid Mechanics
 - *Journal of General Physiology*
 - Journal of Mathematical Analysis and Applications
 - Journal of Mathematical Biology
 - Journal of Theoretical Biology

- Mathematical Biosciences
- Mathematical Biosciences and Engineering
- Mathematical Models and Methods in Applied Sciences
- Medical Engineering and Physics
- Physics of Fluids
- PLoS one
- Scandinavian Cardiovascular Journal
- SIAM Journal of Applied Mathematics
- The European Physical Journal
- *The Journal of Engineering in Medicine*
- Reviewed conference manuscripts for
 - IEEE-EMBS Eng Med Biol Conf
 - Proc Institution of Mechanical Engineers, published in *The Journal Engineering in Medicine*
- Reviewed book for SIAM on introduction to mathematics in biology (the book is still in process)
- Evaluated one book proposal submitted to SIAM
- Reviewed proposals for
 - NSF (panel member and mail-in reviewer)
 - NIH (ad-hoc panel member)
 - British Medical Research Council
 - Marsden Fund, New Zealand
 - Office of Naval Research
 - New Zealand Research Foundation