Donna Calhoun

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Education

- **Ph.D. Applied Mathematics**. University of Washington (1999). Thesis : "A Cartesian grid method for solving the streamfunction vorticity equations in irregular geometries". Thesis advisor: Prof. Randall J. LeVeque.
- **M.S. Mathematics**. University of Washington, Seattle, WA. (1988). Master's degree specialization in optimization. Advisor : Prof. James Burke.
- **B.A. Mathematics**. Pomona College, Claremont, CA. (1985)

Academic Research Positions

- Associate Professor (2016-present) **Dept. of Mathematics**, Boise State University, Boise, ID.
- Assistant Professor (2011-2016) **Dept. of Mathematics**, Boise State University, Boise, ID.
- Visiting Fellow (Summer 2015) **Isaac Newton Institute for Mathematical Sciences**, Cambridge, England. Program : "Coupling Geometric PDEs with Physics for Cell Morphology, Motility and Pattern Formation".
- CAES Affiliate Faculty (2012-present) **Center for Advanced Energy Studies**, Idaho National Laboratory, Idaho Falls, ID.
- Visiting Fellow (Fall 2012) **Isaac Newton Institute for Mathematical Sciences**, Cambridge, England. Program : "Multiscale Numerics for the Ocean and Atmosphere".
- Acting Assistant Professor (2004 - 2005) **Dept. of Mathematics**, University of Washington, Seattle, WA.
- Post-doctoral researcher (2002-2004) **Dept. of Applied Mathematics**, University of Washington, Seattle, WA. Work supported by the Department of Energy SciDAC program. Research supervisor: Prof. Randall J. LeVeque.
- Post-doctoral researcher (1999-2002) **Courant Institute of Mathematical Sciences**, New York University, NYC, NY. Work supported by the Department of Energy. Research Supervisor: Prof. Marsha Berger.
- Research assistant (1995-1999) **Department of Applied Mathematics**, University of Washington, Seattle, WA. Thesis advisor : Prof. Randall J. LeVeque.
- Research assistant (1997-1998) **Program in Geophysics**, University of Washington,Seattle, WA. Developed 3d boundary element code for modeling growth of ice crystals in the atmosphere. Work supported by NSF research grant. Research directed by Prof. Marcia Baker.

Government and Industry Positions

- Research Engineer (2005 - 2010) **Commissariat l'Énergie Atomique**, *DEN/DM2S/SFME-/LTMF* Saclay, France. Division of Nuclear Energy. Research engineer in computational fluids and mechanics group responsible for modeling hydrogen combustion and multiphase flows. My primary responsibilities include using an adaptive mesh refinement code (ChomboClaw, EBChombo, ClawPack) to simulate combustion processes. Head of Laboratory : Alain Bengaouer
- Summer Employee (Summer, 1995) **Lawrence Livermore National Laboratory**, Livermore CA. Center for Computational Sciences and Engineering. Developed tools for adaptive mesh refinement code. Research supervisor : Dr. Ann Almgren.
- Senior Analyst/Programmer (1991 - 1994) Hazardous Material Response and Assessment Division, Western Regional Office, **National Oceanic and Atmospheric Administration**, Seattle, WA. Supported development of simulation software for modeling accidental release of hazardous materials into the environment, including oil spills, chlorine gas releases and fires involving toxic chemicals.
- Software Developer (1993-1995) **Rogue Wave Software, Inc.** Boulder, CO. Developed SparseMat.h++, a C++ sparse matrix package. Work done under contract as a consultant to Rogue Wave.
- Director of Applications and Third Party Products (1989-1991) **Aptech Systems, Inc.**, Kent, WA. Developed third-party statistical and mathematical applications for Aptech's scientific programming language GAUSS. Also developed a linear programming package for GAUSS.
- Software Developer (1989 - 1991) **Desktop Photogrammetry, Inc.** San Mateo, CA. Primary developor of PhotoCAD, a system which can be used for photogrammetric reconstruction of objects. Work done under contract as a consultant to Desktop Photogrammetry.

Teaching Positions

- Associate Professor (2016-present) **Department of Mathematics**, Boise State University, Boise, Idaho. Courses taught include graduate and undergraduate courses in scientific computing, numerical analysis, complex analysis and linear algebra.
- Instructor (Pan-American Advanced Studies Institute, 2013), Instructor in 10 day course on Summer School "The science of predicting and understanding tsunamis, storm surges and tidal phenomena". Gave 3 hour-long lectures and ran lab sessions on finite-volume schemes in the GeoClaw software. Valparaiso, Chile (January 2-13, 2013).
- Instructor (Summer School RTG Short Couse, 2011) **Department of Mathematics**, University of Washington, Seattle, Washington. One of two instructors on three week course on finite volume methods for hyperbolic problems. Students are advanced undergraduates and beginning graduate students and were supported by the University of Washington Research Training Grant on Inverse Problems and Partial Differential Equations. Course taught jointly with Randall J. LeVeque (Dept. of Applied Mathematics, Univ. of Washington). June 20 - July 8, 2011.
- Instructor (2009, 2010) **Institut Galilée**, Department of Mathematics, Université Paris 13, Villetaneuse, France. Instructor for 5 week (15 hours) course on scientific computation, with directed projects. Students are third year engineering students.
- Acting Assistant Professor (2004 - 2005) **Department of Mathematics**, University of Washington, Seattle, WA. Instructor for three-quarter sequence in upper division numerical analysis. In addition to theoretical numerical analysis, the course also focused on practical aspects of computational science, including development of skills in Matlab and Fortran programming.

- Instructor (Winter and Fall semesters, 2001) **New York University**. New York, NY. Instructor for the Department of Mathematics. Taught two semesters of pre-calculus. Held lectures in large lecture hall and organized 2-3 TAs working under my supervision.
- Teacher (1988-1989) Substitute teacher for several private high schools in the Seattle area, including **Lakeside**, **Overlake** and **The Bush School**. Was on the short list for full-time teaching position at Lakeside; was offered a full-time teaching position at Overlake.
- Instructor (1987-1988) **University of Washington**, Department of Mathematics, Seattle, WA. Fully responsible for college level algebra and pre-calculus courses.
- Instructor (Summers 1987 and 1989) **Phillips Academy Summer Session**. Instructor for Phillips Academy. Taught high school algebra and pre-calculus. Developed and taught a course on Fractal Geometry for high school students.
- Teaching Assistant (1986-1987) **University of Washington**, Department of Mathematics, Seattle, WA. Held quiz sections for Calculus.
- Teaching Fellow (1985-1986) **Phillips Academy**, Department of Mathematics, Andover, MA. Taught four courses of pre-calculus and high school algebra for the Mathematics Department. Was asked to stay as full-time instructor.
- Teaching Fellow (Summer 1984) **Northfield Mount Hermon School**, Northfield, MA. Teaching assistant for junior high school level algebra course.

Journal Publications and Refereed Conference Proceedings

- D. Calhoun and C. Burstedde, "ForestClaw : A parallel algorithm for patch-based adaptive mesh refinement on a forest of quadtrees", (2017), arXiv:1703.03116.
- K. T. Mandli. A. J. Ahmadia, M. Berger, D. Calhoun et al., "Clawpack: Building an open source ecosystem for solving hyperbolic PDEs", Peer J Computer Science, 2(68) (2016).
- P. H. Lauritzen, P. A. Ullrich, C. Jablonowski, P. A. Bosler, D. Calhoun, et al., "A standard test case suite for two-dimensional linear transport on the sphere: Results from a collection of state-of-the-art schemes", Geosci. Model Dev., 7 (2014) pp. 105-145.
- C. Burstedde, D. Calhoun, K. T. Mandli, and A. R. Terrel, "ForestClaw: Hybrid forest-of-octrees AMR for hyperbolic conservation laws", in *Parallel Computing : Accelerating Computational Science and Engineering (CSE)*, M. Bader, A. Bode, H.-J. Bungartz, M. Gerndt, G. R. Joubert, and F. Peter, eds., vol. 25 of Advances in Parallel Computing, IOS Press, 2014. 253-262.
- J-R. Ling, D. Calhoun, C. Poupon, D. Le Bihan, "Numerical simulation of diffusion MRI signals using an adaptive time-stepping method", *Physics in Medicine and Biology*, 59 (2014), pp. 441-454.
- D. Calhoun, C. Helzel, "A finite-volume method for solving parabolic equations on logically Cartesian curved surface meshes", *SIAM J. Sci. Comp.*, Vol. 31, Issue 6. pp. 4066–4099 (2009).
- M. Berger, D. Calhoun, C. Helzel, R. J. LeVeque, "Logically rectangular finite volume methods with adaptive refinement on the sphere", *Phil. Trans. R. Soc.*, Vol. 367, No. 1907, pp. 4483–4496 (2009).
- J. Li, D. Calhoun, L. Brush, "Efficient thermal field computation in phasefield models", *J. Comp. Phys.*, Vol. 228, Issue 24. pp. 8945–8957 (2009).
- A. Kato, L. M. Moskal, P. Schiess, M. Swanson, D. Calhoun, W. Stuetzle, "Capturing tree crown formation through implicit surface reconstruction using airporne lidar data", *Remote Sensing of Environment* Vol. 113, pp. 1148-1162 (2009)

- D. Calhoun, C. Helzel, R. J. LeVeque. "Logically rectangular grids and finite volume methods for PDEs in circular and spherical domains". *SIAM Review* Vol. 50, Issue 4, pp. 723-752 (2008).
- D. Calhoun, H. Paillére. "Wave propagation algorithms and adaptive mesh refinement for CFD simulations of potential hydrogen explosions in nuclear containment structures". *Proceedings of the Joint International Topical Meeting on Mathematics and Computation and Supercomputing in Nuclear Applications.* Monterey, California, April (2007).
- A. Kato, D.Calhoun, G. Schreuder, P. Schiess, "Estimating Crown Volume through Implicit Surface Reconstruction from LIDAR Points for Forest Fire Simulation", *Proceedings of the American Society for Photogrammetry and Remote Sensing*, November (2006).
- D. Calhoun, C. Helzel, R. J. LeVeque. "A Finite Volume Grid for Solving Hyperbolic Problems on the Sphere", *Hyperbolic Problems : Theory, Numerics, Applications*, Springer. Proceedings of the Eleventh Int. Conf. on Hyperbolic Problems, Lyon, France. July 17-21 (2006).
- D. Calhoun and R. J. LeVeque, "An accuracy study of mesh refinement on mapped grids", Proceedings of the *Chicago Workshop on Adaptive Mesh Refinement*, September, 2003. Series: Lecture Notes in Computational Science and Engineering, Vol 41. December 2004.
- D. Calhoun, "A Cartesian grid method for solving the two-dimensional streamfunction vorticity equations in irregular regions", *J. Comp. Phys.*, Vol. 176, pp. 231-275 (2002).
- Stephen E. Wood, M. Baker and D. Calhoun. "New model for the vapor growth of hexagonal ice crystals in the atmosphere", *J. of Geophys. Res.*, Vol. 106, pp. 4845-4870 (2001).
- D. Calhoun, R. J. LeVeque, "Cartesian grid methods for fluid flow in complex geometries", *Computational Modeling in Biological Fluid Dynamics*, IMA Volumes in Mathematics and its Applications, Vol. 124, pp. 117–143 (2001).
- D. Calhoun, R.J. LeVeque, "Solving the advection-diffusion equation in irregular geometries", *J. Comp. Phys.* Vol. 157, pp. 143–180 (2000).
- D. Calhoun and Roy Overstreet, "Sensitivity Analysis of a Dynamical System Using C++", Special Issue of *Scientific Programming*, Vol. 2, No. 4, pp. 157-169 (1993).

Technical Reports

- D. Calhoun and N. Coulon, "Thermodynamics and transport of homogenous air-vapor-liquid mixture through cracks in concrete (Part II)", *Technical Report, Commissariat a l'Energie Atomique*, RAPPORT SFME/LTMF/RT/10-014/A, Direction de l'Energie Nucleaire (2010).
- D. Calhoun "Using Cartesian Embedded Boundary Methods to Simulate Detonations in Complex Geometry", *Technical Report, Commissariat a l'Energie Atomique*, RAPPORT SFME/LTMF/RT/09-010/A, Direction de l'Energie Nucleaire (2009).
- D. Calhoun, "Thermodynamics and transport of homogenous air-vapor-liquid mixture through cracks in concrete", *Technical Report, Commissariat a l'Energie Atomique*, RAPPORT SFME/LTMF/RT/09-007/A, Direction de l'Energie Nucleaire (2009).
- D. Calhoun. "Wave propagation algorithms and adaptive mesh refinement for simulating hydrogen explosions in nuclear containment buildings", *Technical Report, Commissariat a l'Energie Atomique*, RAPPORT SFME/LTMF/RT/07-14/A, Direction de l'Energie Nucleaire (2007).

Software

- ForestClaw. A parallel, adaptive library for solving PDEs in logically Cartesian, mapped, multiblock domains. In collaboration with Carsten Burstedde, Univ. of Bonn, Germany. (`http://www.forestclaw.org`).

Selected Talks

- "ForestClaw/Geo : Modeling dam break flooding using scalable adaptive quadtrees", Invited talk. Numerical Analysis Seminar, University of Dusseldorf, Germany. (June 7, 2017).
- "Multi-rate Runge-Kutta-Chebyschev time-stepping for parabolic equations on adaptively refined meshes", Numerical Methods for PDEs and their Applications. Institut Mittag-Leffler, Sweden. (May 29 - June 2, 2017).
- "ForestClaw/Geo : Modeling dam break flooding using scalable adaptive quadtrees", Invited talk. Kaust workshop on predictive complex computational fluid dynamics, KAUST, Saudi Arabia. (May 22-24, 2017).
- "Adaptive Mesh Refinement for Geophysical Flow Modeling", SIAM CSE. Atlanta, Georgia. (March 1, 2017).
- "Adaptive mesh refinement for solving PDEs on logically Cartesian mapped multiblock quadtree domains", Invited talk, Applied Mathematics, Colorado State University, Fort Collins, CO. (Sept. 22, 2016).
- "Algorithmic components of the ForestClaw adaptive mesh library : Multi-rate time stepping", SIAM Parallel Processing, University Pierre and Marie Curie, (April 12-15, 2016).
- "Recent parallel results using dynamic quadtree refinement for solving hyperbolic conservation laws in 2d", SIAM Parallel Processing, University Pierre and Marie Curie, (April 12-15, 2016).
- "A mapped, multiblock software library for solving conservation law on locally adaptive Cartesian meshes", Workshop on Dynamic Adaptivity, Simula Research Lab, Norway. (December 9-19, 2015).
- "ForestClaw : Mapped, multiblock adaptive quadtrees", SIAM Computational Science and Engineering (mini-symposium organizer). Salt Lake City, Utah. (March 13-18, 2015).
- "Multi-resolution modeling and simulation in natural hazards modeling", Invited talks, Japan Agency for Earth-Science and Technology (JAMSTEC), Yokohama, Japan (February 18, 2015). Chiba University, Chiba, Japan. (February 19, 2015).
- "ForestClaw : Mapped, multiblock adaptive quadtrees". Invited talk, HPC^3. Kaust, Saudi Arabia. (November 9-13 2014).
- "Parallel, adaptive framework for mapped, multi-block domains". SIAM Parallel Processing. Portland, Oregon. (February 18-21, 2014).
- "Parallel, adaptive framework for mapped, multi-block domains". PDEs on the Sphere. NCAR (Boulder, CO). (April 7-11, 2014).
- "Adaptive Mesh Refinement: Boldy going beyond single stage methods", Invited presentation, Department of Mathematics, University of Texas, Arlington. (November 1, 2013).
- *Developer's Workshop and Hackathon*, Presentation of *ForestClaw*, July 22-26, 2013. University of Washington, Seattle, WA. (July 23, 2013).
- "A hybrid adaptive mesh framework for finite volume schemes on a forest of locally refined Cartesian meshes", SIAM Geosciences Conference, June 17-20, 2013. Padua, Italy (June 20, 2013).

- "A hybrid adaptive mesh framework for finite volume schemes on a forest of locally refined Cartesian meshes", SIAM Conference on Computational Science and Engineering, Feb. 24-28, 2013, Boston, MA. (February 26, 2013).
- "A locally adaptive Cartesian finite volume framework for solving PDEs on surfaces", Invited presentation, University of Oxford, UK (November 29th, 2012).
- "A conservative finite-volume approach to modeling thermodynamics and transport in air-water-vapor mixtures", Isaac Newton Institute, Cambridge, UK (Nov. 19th, 2012).
- "Solving the Riemann problem for linear and linearized hyperbolic systems", Isaac Newton Institute, Cambridge, UK (Nov. 19th 2012).
- "A logically Cartesian, adaptively refeined two-patch sphere grid for modeling transport in the atmosphere", Invited talk, University of Warwick, UK (Nov. 16, 2012).
- "A logically Cartesian, Adaptively refined two-patch sphere grid for modeling transport in the atmosphere", PDEs on the Sphere. Cambridge, UK (Sept. 24-28, 2012).
- "Patch-based AMR Algorithms", HPC^3. King Abdullah University of Science and Technology (Kaust), (invited) Saudi Arabia. Feb 2-10, 2012.
- "An Approximate Riemann solver for modeling stream flow in cracks in concrete nuclear reactor containment buildints", *The Second Annual CAES Workshop on Modeling, Simulation and Visualization*, **Boise State University**, Boise, ID. September 8-9, 2011.
- "A conservative finite volume approach to modeling thermodynamics and transport in air-vapor-water mixtures", **ICIAM 2011**, Vancouver, Canada. (mini-symposium organizer). July 18-22, 2011.
- "A conservative finite volume approach to modeling thermodynamics and transport in air-vapor-water mixtures", (invited) **University of Idaho**, Moscow, ID. May 5, 2011.
- "Wave Propagation Algorithm of LeVeque on the Sphere", **Workshop on Transport Schemes on the Sphere**, National Center for Atmospheric Research (NCAR), Boulder, CO. March 30-31, 2011.
- "Structured adaptive mesh refinement algorithms for elliptic problems", **Collège de Polytechnique**, Paris, France. October 22, 2010.
- "Software for structured AMR", **Collège de Polytechnique**, Paris, France. October 22, 2010.
- "A finite volume method for solving parabolic equations on curved surfaces", Workshop on Numerical Methods for PDEs on Surfaces, as part of *SFB/TR 71 Geometric Partial Differential Equations* Freiburg, Germany, Sept. 14-17, 2009.
- "Using embedded boundary methods for simulating detonations in reactor containment buildings", **SIAM Annual Meeting**, San Diego, CA. July 6-11, 2008.
- "Simulating Detonations in Large Scale Industrial Settings", **SIAM Numerical Combustion Meeting**, Monterey CA, March 31 - April 2, 2008.
- "Wave Propagation Algorithms and Adaptive Mesh Refinement for CFD Simulations of Potential Hydrogen Explosions in Nuclear Containment Structures", **Mathematics, Computation and Supercomputing in Nuclear Applications**, Monterey, CA, April 15-19, 2007.
- "Simulating potential hydrogen explosions in nuclear reactor containment buildings", **SIAM Computational Science and Engineering Conference**, *Mini-symposium organizer*, Costa Mesa, CA. February 19-23, 2007.

- "Imposing exact far-field boundary conditions for elliptic and parabolic problems", **INRIA**, Projects POEMS, Rocquencourt, France, November 23, 2006.
- "Finite Volume Grids and Methods for Hyperbolic Problems on the Sphere and other Spherical Domains", **Ecole Normale Superior**, Cachan, November 13, 2006.
- "Finite Volume Grids and Methods for Hyperbolic Problems on the Sphere and other Spherical Domains", **11th International Conference on Hyperbolic Problems Theory, Numerics, Applications**, Lyon, France, July 17-21, 2006.
- "Wave propagation algorithms for adaptively refined, mapped Cartesian Grids", **Canadian Applied and Industrial Mathematics Society (CAIMS-MITACS)**, Toronto, Canada, June 16-20, 2006.
- "A Simplified Model for Computing Peak Over-pressures in explosions in nuclear reactor containment facilities", **SIAM Numerical Combustion Meeting**, Grenada, Spain, April 23-26, 2006.
- "Wave propatation algorithms for mapped Cartesian Grids", **LIMSI**, Orsay, France. March 29,2006.
- "Wave propagation algorithms and adaptive mesh refinement on quadrilateral and hexahedral grids", CEA-GAMNI, **Institute Henri Poincaré**, Paris, France, January 31, 2006.
- "Exact far-field boundary conditions for two dimensional elliptic and parabolic equations", Invited speaker, Numerical Analysis Seminar, **Courant Institute of Mathematical Sciences**, New York, April 22, 2005.
- "Wave Propagation Algorithms and Adaptive Mesh Refinement on Quadrilateral and Hexahedral Grids", SIAM Computational Science and Engineering Conference, *Mini-symposium organizer*, Orlando, FL. February 11-15, 2005.
- "Cartesian grid methods for fluid flow in complex geometries", **Groupe de Travail, Méthodes Némeriques**, *Laboratoire d'Analyse*, Paris VI, Paris, France, January 10, 2005.
- "Exact far-field boundary conditions for elliptic and parabolic equations", Invited speaker at the **Pacific Northwest Numerical Analysis Seminar**, Banff, Canada, September 2004.
- "A Cartesian grid method for solving the streamfunction-vorticity equations in irregular regions", **Numerical Analysis Seminar**, *Courant Institute of Mathematical Sciences*, New York University, NY, November 12, 1999.
- "A Cartesian grid method for the numerical solution of problems in phase transition", **Conference on Mixed Phase Regions**, Edinburgh, Scotland, June 1997.

Grants Awarded

- National Science Foundation. "A parallel algorithmic framework for flexible time discretization on adaptive Cartesian meshes". PI : Donna Calhoun. Award Amount : $194,000. Division of Mathematical Sciences, Award # 1419108. Funded (3 years, starting Aug. 2014).
- National Science Foundation. "Massively Parallel Adaptive Computational Methods for Improved Predictions of Atmospheric Flows over Complex Terrain" PI : Inanc Senocak (Dept. of Mech. Eng., BSU). Co-PIs : Donna Calhoun, Grady Wright (Dept. of Math., BSU), Elena Sherman (Dept. of Comp. Sci., BSU). Program in Sustainable Software Infrastructure (SSI) Award # SSE-1440638. Award Amount $500, 000). Funded (3 years, starting Sept. 2014).

- National Science Foundation. "Pacific Northwest Numerical Analysis Seminar 2012" (PNWNAS 2012). Award covered speakers and a limited number of students travel costs. PI : Donna Calhoun; Co-PIs : Grady Wright and Jodi Mead (Dept. of Math., BSU). Award Amount $8,200. Funded (July 2012).

Graduate students supervised

- Talin Mirzakhanian, Master's student, BSU Dept. of Mathematics. (Spring, 2017). *Multi-rate Runge-Kutta-Chebyshev Time Stepping for Parabolic Equations on Adaptively Refined Meshes.* Funded as Master's student through NSF award # 1419108. *Role : Supervisor and Chair of Master's Degree Committee*

- Yuan-Hsian (Melody) Shih, Research Assistant (former Columbia University Master's student; current NYU PhD student). (January-July, 2017). Simulation of volcanic ash cloud modeling using ForestClaw. Joint with with the USGS, Vancouver, WA. Funded through NSF grant # 1419108. *Role : Research supervisor*

- John Hutchins, Master's student, BSU Department of Mathematics (July, 2013). *Computing curvature and curvature normals on smooth logically Cartesian surface meshes.* Current position : Staff researcher, Dept. of Chemical Engineering, University of Utah. *Role : Supervisor and Chair of Master's Degree Committee*

- Jean Schneider, Master's student, BSU Department of Mathematics (May, 2012). *Perfect stripes from a general Turing model in different geometries.* Current position : Lecturer, Department of Mathematics, Boise State University. *Role : Supervisor and Chair of Master's Degree Committee*

Undergraduate students supervised

- Aaron Solt, Undergraduate, BSU Dept. of Mathematics. (Fall, 2015). Senior Thesis project on implementing schemes for maintaining conservation in the parallel, adaptive ForestClaw code. *Role : Senior Thesis supervisor*

- Ryan Camacho, Undergraduate, BSU Dept. of Mathematics. (Fall, 2015). Student project on developing animations for curves traced out by cycloids. Role : Supervisor

- Cody Casteneda, Undergraduate, BSU Dept. of Mechanical Engineering. (April 2015 – Dec. 2015). Work with Idaho National Laboratory to develop flooding models using GeoClaw and ForestClaw. Funded as undergraduate research through NSF Award # 1419108. *Role : Research supervisor*

- Stephanie Potter, Undergraduate, BSU Department of Mathematics. (Oct 2013 - Spring 2015). Recipient of BSU SRI Grant ($500) for undergraduate research. "Google Earth visualization of tsunami activity". Current position : Graduate student, Dept. of Mathematics, Boise State. *Role : Research supervisor.*

University Service

- (2015-present) Member of the Graduate Council, College of Arts and Sciences.

- (2017-present) Hiring committee member, Dept. of Mathematics.

- (2013-present) Undergraduate Internship Coordinator, Dept. of Mathematics.

- (2015-2016) Member of the Honor's College committee to review and assist students in their Marshall Scholars Applications.

- (2013-2014) Member, Applied Math Working Group, to develop new course in Applied Mathematics for Scientists and Engineers (Math 427/527). Presented the new course to math dept. faculty, and to the University Curriculum committee. This effort was lead by Inanc Senocak, Dept. of MBE.
- Part of working group, led by Inanc Senocak (MBE), to design the CSE (Computational Science and Engineering) Minor degree at BSU.
- (2011-2013) Calculus Committee. Coordinated with textbook publisher to do a trial run of new text for the Calculus sequence, and introduced the use of the WebAssign Online homework system.
- Maintain GEMRES website and virtual network for computational research activities at Boise State `http://www.gemres.org`.

Community Service

- (April, 2015) Worked with the GEMSET Girls Club, organized by the Discovery Center in Boise to introduce girls to STEM fields. I presented the project "Bunny Hop!", an introduction to fractals using hopping bunnies as the motivation.
- (January, 2011) Presented poster on computational methods for pattern formation at the Boise State Discover Engineering Day (January 24, 2011)

Professional Service and Membership

- Member of Society for Industrial and Applied Mathematics (SIAM).
- Editorial Board, Special Issue : SIAM Journal of Scientific Computing.
- Reviewer for Department of Energy (DOE) Office of Science ASCR grants.
- Reviewer for National Science Foundation (NSF) grants.
- Technical Program Member, Supercomputing 2016.
- Review for numerous journals in numerical software development, and partial differential equations, including *SIAM Journal of Scientific Computing*, *Advances in Computational Mathematics*, *IMA Journal of Numerical Analysis*; *Numerical Mathematics : Theory, Methods and Applications*, *ACM Transactions on Mathematical Software*, *Computers & Fluids*, *Communications in Applied Mathematics and Computational Science*.