Mihai Anitescu

June 30, 2014

Address :	Mathematics and Computer Science Division, Argonne National Laboratory 9700 S. Cass Avenue Argonne, IL 60439
Office phone:	(630) 252 4172
e-mail:	anitescu@mcs.anl.gov
home page:	http://www.mcs.anl.gov/~anitescu

PERSONAL DATA

- **Citizenship:** USA, since 2007.
- **Marital status:** Married to Magdalena; two daughters, Julia-Christine (born 2002), and Emily-Alexandra (born 2007).

EDUCATION

1997 Ph.D. in Applied Mathematical and Computational Sciences,
University of Iowa (academic advisor: Prof. Florian Potra).

1992 M.S. in Electrical Engineering (Engineer Diploma),
Polytechnic University of Bucharest, Romania.

APPOINTMENTS

2002-	(Senior, 2013-) Computational Mathematician, Mathematics and Computer Science Division, Argonne National Laboratory (primary appointment).
2009-	Professor, (Part-Time), Department of Statistics, University of Chicago. Tenured, since 2012
2005-	Fellow (Senior 2010-), Computation Institute, University of Chicago
2004-	Adjunct Associate Professor, Department of Mathematics, University of Pittsburgh.

PROFESSIONAL EXPERIENCE

1997-2004	Assistant Professor, Department of Mathematics, University of Pittsburgh (on leave 1997-1999 and 2002-2004).
1997-1999	Wilkinson Fellow in Scientific Computing, Argonne National Laboratory.
1993-1997	Research and Teaching Assistantships in the Departments of Mathematics and Computer Science, University of Iowa.

1995	Givens Research Associate, Mathematics and Computer Science Division, Argonne National Laboratory.
1992-1993	Teaching Assistant, Department of Electronics, Polytechnic University of Bucharest, Romania.
1992	Tempus Fellow, Institut National Polytechnique de Grenoble, France

HONORS AND AWARDS

- Finalist, Best Paper Award for the IEEE PES Summer Meeting 2014 (with S. Abhyankar and V. Rao)
- Winner of the 2013 COIN-OR cup (with Miles Lubin, Julian Hall, and Cosmin Petra)
- Recipient of the 2012 DOE INCITE Award (with a 14M CPU hour allocation on the ANL BG/L "Intrepid" Supercomputer)
- Recipient of the 2011 DOE INCITE Award (with a 10M CPU hour allocation on the ANL BG/L "Intrepid" Supercomputer)
- Wilkinson Fellow, Argonne National Laboratory, 1997-1999.
- Silver medal at the International Mathematical Olympiad, 1986.
- Prizes at the regional and national phases of The Physics Competition (both the general and the electromagnetics sections) for Romanian college students, 1989.
- Romanian National Fellowship, 1989.
- First prize at the Romanian National Mathematical Competition "Traian Lalescu" (college students), 1988.
- Multiple prizes at the regional and national phases of the Romanian National Olympiad and various other national high school mathematics and physics competitions, 1984–1986.

FUNDING

- **At Argonne External (funding amounts are per year, in reverse order of awarding time)**
  - PI, Spatio-Temporal Statistical Analysis at Scales Using Gaussian Processes DOE-ASCR, $ 400K, 2013-2016.
  - PI and Director, "M2ACS: Multifaceted Mathematics for Complex Energy Systems", DOE-ASCR, $ 3.5M, 2012-2017. At award time, the project had 22 PIs from 5 sites: Argonne, PNNL, Sandia, Univ. of Wisconsin, Univ. of Chicago.
  - PI, "Scalable Dynamic Optimization", DOE-ASCR, $400K, 2012-2015.
  - co-PI " Frameworks, Algorithms, and Scalable Technologies for Mathematics (FASTMath) SciDAC Institute", DOE-ASCR, $ 6.75M, 2011-2016. PI: Lori Diachin. ANL PI: Barry Smith. I am the lead PI for Differential Variational Inequalities subtopic, at $250K.
  - co-PI "Climate Science for a Sustainable Energy Future (CSSEF)", DOE-BER, $ 5M 2011-2016; Lead ANL UQ PI. Lead PI: David Bader (ORNL).
  - co-PI "Center for Exascale Simulation of Advanced Reactors (CESAR)", DOE-ASCR,$4M 2011-2016. Lead of the Uncertainty Quantification Area. Lead PI: Robert Rosner (University of Chicago).

- PI, “Scalable statistical analysis of Gaussian models for Petascale spatiotemporal data”, DOE-ASCR, $450K, 2009-2013.
- PI, “Stochastic Optimization of Complex Systems”, DOE-ASCR, $485K, 2009-2012.
- PI, “Advanced Numerical Methods for Differential Variational Inequalities”, $325K, DOE-ASCR, 2009-2012.
- co-PI ”SCIDAC-E: Differential Variational Inequalities for Phase Field Problems”, DOE-ASCR, $300K, 2009-2011. Lead PI: Lois Curfman McInnes.
- Co-PI, “International Symposium on Mathematical Programming”, $20K, DOE-ASCR, 2009.
- PI, “ A New Challenge for Computational Science: Complementarity Constraints”, $375K, DOE-ASCR, 2006-2009.
- Co-PI, NSF DMS-0937025, “International Symposium on Mathematical Programming”, $20K, 2009.

- **At Argonne External on Annual Renewal Schedules (funding amounts are per year, in reverse order of awarding time)**
  - Annual Operation Plan for Officed of Energy Delivery co-PI, ”Development of methodologies for large-scale optimization for electrical transmission planning”. PI: Victor Zavala, 2013-2014,$375K (and 2010-2011, $375K, 2011-2012, $375K, 2012-2013, $375K).
  - Workpackage Manager ” VV UQ for Reactor IPSC”, DOE-NE, $300K, 2011–2012 (and 2010-2011, $200K).

- **At Argonne Internal (funding amounts are per year, in reverse order of awarding time)**
  - Co-Investigator of the ”Big Data Grand Challenge” LDRD Award, $1.5M, 2012-2015.
  - Co-Investigator of the ”Mesoscale Electro-Mechanical Materials” LDRD Award, $400K, 2012-2015.
  - Co-Investigator of the ”Toward Understanding Cloud Processes and Uncertainty Modeling in Next-Generation High-Resolution Climate Models, LDRD Award, $250K, 2011-2014
  - Co-Investigator of the “Novel Power System Operations Methods for Wind-Powered Systemr” LDRD Award, by Argonne National Laboratory, $350K, 2009-2012
  - Co-Investigator of the “Separations” LDRD Award, by Argonne National Laboratory, $300K, 2007-2010
  - Co-Investigator of the “Virtual Fab Lab” LDRD Award, by Argonne National Laboratory $300K+, 2004-2006 (PIs P. Zapol and S. Gray).

- **At Pitt**
  - Co Principal Investigator for the National Science Foundation Grant DMS-0112239 “Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)”, 2001-2003, $25,000 + $39,000 University of Pittsburgh cost sharing (with J. Chadam, C. Chow, W. Layton, and I. Yotov).
  - Principal Investigator for the National Science Foundation Grant DMS-9973071, “A Computational Framework for Multi-Rigid Body Dynamics with Contact and Friction”, 1999-2002, $75,000.
  - Principal Investigator for the University of Pittsburgh Grant “A Computational Framework for Multi-Rigid Body Dynamics with Contact and Friction”, 1999-2001, $14,204.

TEACHING ACTIVITIES

University of Pittsburgh

- **Classes taught:** Elementary functions, Calculus for Engineering, Trigonometric Functions, Calculus for Business, Introduction to Linear Programming, Introduction to Numerical Linear Algebra, Introduction to Scientific Computing (graduate), Introduction to Numerical Ordinary Differential Equations (graduate), Industrial Mathematics, Numerical Linear Algebra (graduate), Introduction to Numerical Partial Differential Equations (graduate).
- **Curriculum Development**
  - Developed the graduate class Introduction to Scientific Computing (1999).
  - Developed, together with John Burkardt of the Pittsburgh Supercomputing Center, the computational laboratory for Introduction to Scientific Computing (1999).
  - Participated in various curriculum enhancement activities of the undergraduate mathematics program, including a Sloan Foundation-sponsored development of an industrial mathematics program (2000).

University of Chicago, Graduate Classes

- Stats 31020: Computational Mathematics II: Nonlinear Programming. Winter, 2014.
- Stats 343: Linear Models. Autumn, 2012 and 2013.
- Stats 310: Computational Mathematics II: Simulation and Optimization. Winter, 2012, 2011, 2010

MENTORSHIP AND SUPERVISION ACTIVITIES

- **Postdoctoral and Long-Term Visiting Scholars Sponsored or Supervised**

1. Dan Negrut (2004-2005), currently tenured faculty at University of Wisconsin, Department of Mechanical Engineering. Research Topic: " Scalable Multiscale Methods for Orbital-Free Density Functional Theory "
2. Victor Zavala (2008-2010) Research Topic: "Optimization of Hybrid Energy Systems". Currently, Assistant Computational Mathematician, Argonne National Laboratory.
3. Emil Constantinescu (2008-2010). Research Topic: "Uncertainty Quantification". Currently, Assistant Computational Mathematician, Argonne National Laboratory.
4. Xiaoyan Zeng (2008-2012). Research Topic: "Uncertainty Analysis in Chemical Plant Safety and Climate". Currently, Assistant Professor at Shanghai University.
5. Cosmin Petra (2009-2012). Research Topic: "Stochastic Programming". Currently, Assistant Computational Mathematician, Argonne National Laboratory.
6. Oleg Roderick (2009-2012). Research Topic: "Hybrid Sampling-Sensitivity Approaches for Nuclear Reactors". Currently, Assistant Computational Mathematician, Argonne National Laboratory.
7. Lei Wang (2010-2013). Research Topic: "Variational Inequalities in the Simulation of Heterogeneous Materials". Currently, Assistant Professor at University of Wisconsin, Milwaukee
8. Jungho Lee (2010-2013, co-advised with Barry Smith). Research Topic: "Variational Inequalities in the Simulation of Heterogeneous Materials". Currently, at Citibank's Fixed Income group.

9. Drew Khouri (2012-2013, Wilkinson Fellow). Research Topic: "Uncertainty Quantification and Optimization. Staff Scientist at Sandia National Laboratory
10. Jie Chen (2010-present). Research Topic: "Numerical Linear Algebra for Gaussian Process Simulation".
11. Ilias Bilionis (2013-present). Research Topic. Research Topic: "Spatio-temporal statistical models for Solar and Wind Power"
12. Linyun Liang (2013-present). Research Topic. Research Topic: "Phase Field Models"
13. Hong Zhang (2014-present). Research Topic: "Adjoints for Energy Systems"
14. Julie Bessac (2014-present). Research Topic:"Spatio-Temporal Statistics".
15. Francois Gilbert (2014-present). Research Topic:"Scalable Dynamic Optimization"

- **Full-time ANL Employees Sponsored and/or Supervised**

1. Emil Constantinescu, Assistant Computational Mathematician, Argonne National Laboratory, 2010-present.
2. Victor Zavala, Assistant Computational Mathematician, Argonne National Laboratory, 2010-present.
3. Miles Lubin, Predoctoral Appointee, Argonne National Laboratory, 2011-2012 (first subsequent position: Ph.D Student at MIT).
4. Cosmin Petra, Assistant Computational Mathematician, 2012-present.
5. Oleg Roderick, Assistant Computational Mathematician, 2012-2014. Currently, Data Scientist at Geisinger Health Systems.
6. Jie Chen, Assistant Computational Mathematician, 2014-present.

- **Student Interns at Argonne, with publications from research during internship**

1. Alec Hanson (Princeton, with Lois C. McInnes), 1998. Project: "Parallel Implementation of Time Dependent Differential Variational Inequalities".
2. Adrian Dunca (University of Pittsburgh, with Traian Iliescu), 2002. Project: " Optimal Design of Fluid Flow Using Subproblems Reduced by Large Eddy Simulation ".
3. Jufeng Peng (Rensselaer) 2003. Project: "Mathematical Programs with Complementarity Constraints in Robotics". Co-author of 1 conference proceedings paper (ICRA 2003).
4. Bogdan Gavrea (University of Maryland, Baltimore County), 2005. Project: "Quadratic Programming Approaches for Multi-Body Dynamics with Contact and Friction". Co-author on 2 journal submissions.
5. Gun Srijutongsiri (grad, Cornell), 2005. Project: "Statistics of Granular Flow".
6. Adrian Kopacz (Northwestern), 2005. Project: " Scalable Methods for Orbital-Free Density Functional Theory Calculations".
7. Monika Neda (University of Pittsburgh), 2006. Project: "A collocation approach for uncertainty quantification in nuclear reactors". Co-author of 1 conference proceedings paper (ANS M&S 2007).
8. Xiaoyan Zeng (Illinois Institute of Technology), 2006. Project: "Chemical Plant Safety Assessment Under Uncertainty" Co-author of 1 journal paper.
9. Emil Constantinescu (Virginia Tech), 2006. Project: " Scalable Methods for Orbital-Free Density Functional Theory Calculations" Co-author of 1 conference proceedings papers.
10. Oleg Roderick (Portland State University), 2008-2009. Project: " A Hybrid Sampling Sensitivity Approach for Uncertainty Quantification in Nuclear Reactors " co-author of 2 journal papers and 1 conference proceedings paper.

11. Kyle Schmitt, (MIT), 2008. Project: " Efficient Sampling of Dynamical Systems with Spatial Uncertainty " co-author of 1 conference proceedings paper and 1 journal paper.
12. Matt Rockhlin, (University of Chicago, with Emil Constantinescu), 2009. Project: "Uncertainty Quantification of Numerical Weather Prediction Systems". Co-author of 1 journal paper.
13. Sangmin Lee (NYU, with Victor Zavala), 2009. Project: "Stochastic Unit Commitment under Uncertainty". Co-author of 1 journal paper.
14. Brian Lockwood (University of Wyoming, CSGF fellow), 2010. Project: " Gaussian Process Models with Derivative Information". Co-author of 1 journal paper.
15. Zhu Wang (Virginia Tech, with Oleg Roderick), 2010. Project " Reduced Order Modeling in Nuclear Reactor Applications". Co-author of 1 journal paper.
16. Miles Lubin (University of Chicago, with Cosmin Petra), 2010-2011. Project "Parallel Software for Stochastic Programming". Co-author of 1 journal paper and 1 conference proceedings paper.
17. Toby Heyn (University of Wisconsin, with Dan Negrut), 2010. Project "Iterative Solvers for Differential Variational Inequalities". Co-author of 1 proceedings paper.
18. Hayes Stripling (Texas A&M University), 2011. Project " Uncertainty Analysis of Wave Reactors". Co-author of 1 journal paper.
19. Zhu Wang (Virginia Tech, with Oleg Roderick), 2011. Project " Using POD in Nuclear Reactor Applications".
20. Carmeline D'Silva (Princeton), 2012. Project "Uncertainty Analysis of Molecular Dynamics Simulations".
21. Wanting Xu (Chicago). Project " Low Memory Methods for weak 4DVar.
22. Ahmed Attia (Virginia Tech). Project "Optimization methods for importance sampling"

- **Graduate students advised (at University of Chicago)**

1. Miles Lubin 2011, MS. Currently Ph.D student at MIT and CSGF fellow.

- **Graduate students advised (at Pitt)**

1. Gary D. Hart, Ph.D., 2007. (with William J. Layton). Currently Instructor, University of Pittsburgh at Greensburgh. Ph.D Thesis: "A Constrained-Stabilized Time-Stepping Approach for Piecewise Smooth Multibody Dynamics. "
2. Faranak Pahlevani, Ph.D., 2004 (with William J. Layton). Ph.D Thesis: " Sensitivity Analysis of Eddy Viscosity Models". Currently Assistant Professor at Penn State Abington.

- **Degree and Exam Committees**

  - **Comprehensive Exam Committee** (at Pitt 1999-2002) Students: Atife Caglar, Jon Drover, Adrian Dunca, Noel Heitmann, Faranak Pahlevani, and Niyazi Sahin, all Math Department at Pitt.
  - **MS Committess** Mark Fenner, Department of Computer Science, University of Pittsburgh (2002).
  - **Ph.D Committees** Anasthasos Liakos, Niyazi Sahin, Adrian Dunca, Hussein-Al Attas, Kimberley Jordan (all at the University of Pittsburgh mathematics department, 1999-2002), Pierre Dognin (electrical engineering, University of Pittsburgh, 2003), Arvind Pupil Raghunathan (chemical engineering, Carnegie Mellon University, 2004), Bogdan Gavrea (mathematics, University of Maryland, Baltimore County, 2006) Cosmin Petra (mathematics, University of Maryland, Baltimore County, 2009), Brian Lockwood (Wyoming, Mechanical Engineering, 2011), Joe Guinness, (U Chicago, Stats, 2012), Toby Heyn (Wisconsin, Mechanical Engineering, 2013), Hayes Stripling (Texas A &M, Nuclear Engineering, 2013).

REFEREEING AND EDITORIAL SERVICE

- **Editorial Boards**
  - Software Editor, Optimization Methods and Software (since 2004).
  - Associate Editor, Mathematical Programming, series A (since 2004).
  - Associate Editor, Mathematical Programming, series B (since 2007).
  - Associate Editor, SIAM Journal on Optimization (since 2010).
  - Associate Editor, SIAM Journal on Scientific Computing (since 2011).
  - Associate Editor, SIAM/ASA Journal on Uncertainty Quantification (since 2012).
- **Proposal Reviews**
  - National Science Foundation. (1998, 1999, 2002, 2006),
  - Romanian Science Foundation (2005).
  - The Natural Science and Engineering Research Council of Canada (2004),
  - The Hong Kong Science Foundation (2002).
  - The Department of Energy (2008,2009,2010,2011,2012, 2013,2014).
- **Panel participation**
  - NSF-ITR small grants panel (2002),
  - NSF Operations Research panel (2006),
  - NSF CSUMS panel (2006).
  - DOE Early Career Awards Panel (2009).
- **Invited NSF workshop participation**
  - "Benchmarks for High Performance Computing", (2005).
  - "Mathematics in Robotics", (2000).
- **Refereed papers (about 15-20 a year) for** *SIAM Journal in Optimization*, *SIAM Journal Of Control*, *SIAM Journal Of Numerical Analysis*, *SIAM Journal On Scientific Computing*, *Numerische Mathematik*, *Mathematical Programming*, *Applied Mathematics Letters*, *Linear Algebra and Its Applications*, *Computational Optimization and Applications*, *Optimization Methods and Software*, *Control, Optimization, and the Calculus of Variations*, *Optimization and Engineering*, *Journal of Optimization Theory and Applications*, *ACM Transactions on Graphics*, *ACM SIGGRAPH*, *International Journal of Numerical Methods in Engineering*, *IEEE Transactions in Signal Processing*, *IEEE Transactions in Robotics*, *IEEE International Conference in Robotics and Automation*, *Transactions of the Institute of Industrial Engineers*, *Computers and Chemical Engineering*.

PROFESSIONAL SOCIETY SERVICE

- **Professional Society Officer**,
  - Society for Industrial and Applied Mathematics (SIAM) liason to the Statistical and Applied Mathematical Sciences Institute (SAMSI). 1/1/15 - 12/31/18.
  - Vice-president, the SIAM Interest group in Optimization (2011-2013).

- Vice-chair for linear programming and complementarity, Optimization Section, Institute for Operations Research and Management Science (INFORMS), 2005-2008. Organized the Linear Programming/ Complementarity Clusters at INFORMS annual meeting, 2006-2007.

- **Conference and Workshops Organization Committees**
  - Applied Mathematics PI meeting, Albuquerque, 2013.
  - Supercomputing 2013, member of the technical program committee.
  - MOS International Conference on Continuous Optimization, 2013, Portugal, Application Cluster co-organizer.
  - The 2nd International Workshop on High Performance Computing, Networking and Analytics for the Power Grid, held in conjunction with Supercomputing 2012, Nov 2012, Salt Lake City, UT.
  - The 1st International Workshop on High Performance Computing, Networking and Analytics for the Power Grid, held in conjunction with Supercomputing 2011, Nov 2011, Seattle.
  - The DOE "Mathematics for the Analysis, Simulation, and Optimization of Complex Systems" Workshop, Sep 2011, Crystal City.
  - Verification, Validation and Uncertainty Quantification Across Disciplines, 2011, Park City Utah (a workshop fully sponsored by DOE – participants got all travel and local expenses funded – through the Institute for Computation in Science).
  - Optimization in Energy Systems, 2010, Snowbird Utah (a workshop fully sponsored by DOE through the Institute for Computation in Science).
  - The DOE Crosscut Extreme Scale Workshop, 2010, Rockville, MD.
  - The 2nd INL/NCSU Verification and Validation Workshop, Myrtle Beach, SC, 2010.
  - ICCOPT 2010: The 3rd International Conference on Continuous Optimization of the Mathematical Programming Society, Santiago de Chile.
  - SIAM Annual Meeting, 2009, Denver
  - International Symposium for Mathematical Programming, 2009, Chicago.
  - Steering Committee, Midwest Numerical Analysis Conference, (2007-present).
  - The 15-th, 16-th, 17-th, 18-th International Conference on Control Systems and Computer Science, Bucharest, Romania, 2005, 2007, 2009, 2011 (sponsored by the regional IEEE chapter).
  - Joint EUROPT-OMS Meeting 2007: 2nd Conference on Optimization Methods and Software and 6th EUROPT Workshop on Advances in Continuous Optimization July 4-7, 2007, in Prague, Czech Republic (member of program committee).
  - World Congress in Computational Mechanics, 2006, Los Angeles (member of advisory committee)

- **Minisymposia organized**
  - **Optimization** INFORMS fall meeting, San Antonio, 2000; INFORMS fall meeting, San Jose 2002 (2); International Symposium in Mathematical Programming, Copenhagen, 2003; INFORMS fall meeting, Atlanta 2003 (2); Canadian Operations Research Society international meeting, Banff, 2004; INFORMS fall meeting, Denver 2004 (3), International Conference on Complementarity Problems, Stanford 2005; INFORMS fall meeting San Francisco 2005 (2); 2-nd International Conference on Continuous Optimization, Hamilton, Canada, 2007; INFORMS Annual Meeting 2007, Seattle; INFORMS Annual Meeting Washington DC, 2008; INFORMS Annual Meeting 2009, San Diego (2); SIAM CSE Conference (2011, 2); SIAM Parallel Processing Conference, 2012; International Symposium in Mathematical Programming, 2012 (3), Berlin; SIAM CSE Conference, Boston, 2013, SIAM UQ Conference, Savannah 2014, SIAM Optimization Conference, San Diego 2014, SIAM Annual Meeting Chicago 2014.

– **Multibody Dynamics** World Congress in Computational Mechanics, Los Angeles, 2006; International Conference for Intelligent Robots and Systems, 2003 (Dynamics Section).

– **Uncertainty Quantification** Idaho Verification and Validation Workshop, Myrtle Beach, (2010), SIAM UQ Conference, Raleigh, 2012

PRIZE AND SPECIAL LECTURE COMMITEE WORK

- International Congress of Mathematicians ICM 2014, Control and Optimization Panel.
- Society for Industrial and Applied Mathematics (SIAM) Optimization Activity Group Prize Committee, 2013 (chair).
- Mathematical Optimization Society – Society of Industrial and Applied Mathematics (MOS-SIAM) 2015 Lagrange Prize Committee.

COMMITTEE WORK AT UCHICAGO

- Computational and Applied Mathematics Undergraduate Major Steering Committee 2014-.
- Computational and Applied Mathematics Initiative Hiring Committee, 2012-2014.

COMMITTEE WORK AT ARGONNE

- Co-chaired the Data Forum (2012-present)
- Chaired the Division Director Search Committee (2010-2011).
- Director's Postdoctoral Committee (2010-2012).
- Chaired the Wilkinson Selection Committee (2012, 2010, 2008).
- Divisional Awards Committee (2009,2010).

COMMITTEE WORK AT THE UNIVERSITY OF PITTSBURGH

- Served in the Mellon Chair Search Committee (1999).
- Departmental Chair Selection Committee (2000).
- Scientific Computing Hiring Committee (2002).

INVITED TALKS

- **1997-2000** Georgia Institute of Technology (1997), Clemson University (1997), Argonne National Laboratory (1997), University of Louisville (1997), University of Pittsburgh (1997), University of Iowa (1997), SIAM Conference in Optimization, Atlanta (1999), INFORMS fall meeting, Philadelphia (1999), University of Maryland, Baltimore County (1999), INFORMS spring meeting, Salt Lake City (2000), Mathematical Programming Symposium, Atlanta (2000), INFORMS fall meeting, San Antonio (2000),

- **2001-2005** Old Dominion University (2001), IMA Workshop on Haptics, Virtual Reality and Human Computer Interaction, Minneapolis (2001), Contact Mechanics International Symposium, Peniche, Portugal, (2001), International Conference on Scientific Computation And Differential Equations, Vancouver, Canada (2001), INFORMS fall meeting, Miami Beach (2001), SIAM Optimization Conference, Toronto, (2002), International Symposium on Complementarity Problems, Cambridge, (2002), INFORMS fall meeting, San Jose, (2002), International Congress on Computational and Applied Mathematics, Sydney (2003), SIAM Annual Meeting, Montreal (2003), INFORMS fall meeting, Atlanta (2003), International Conference on Intelligent Robots and Systems, Las Vegas (2003), SIAM Annual Meeting, Portland (2004), Sandia Multiscale Optimization Workshop (2004), BIRS Workshop on Molecular Dynamics, Banff (2005), Midwest Numerical Analysis Conference, (plenary, 2005), 15th International Conference on Control and Computer Science, Bucharest, (2005), 4th International Conference on Complementarity Problems, Stanford, (2005),

- **2006-2010** Illinois Institute of Technology (2006), Workshop on Assessment of Sensitivity/Uncertainty Analysis Capabilities Applicable for the Nuclear Fuel Cycle, North Carolina State University (2006), 3-rd Workshop on the Global Nuclear Energy partnership, Washington, D.C. (2006), International Congress on Industrial and Applied Mathematics, Zurich (2007), International Conference on Continuous Optimization, Hamilton, (semi-plenary, 2007), Computational and Mathematical Methods in Science and Engineering, (plenary, 2007), International Workshop on Hybrid Systems Modeling, Simulation and Optimization Koc University, Istanbul (2008), GNEP Verification and Validation workshop, Idaho Falls (2008), Stevens Institute of Technology Colloquium (2008), INFORMS Annual Meeting, Washington DC (2008), SIAM Conference on Computational Science and Engineering, Miami (2009), University of Illinois at Chicago Math Colloquium (2009) American Nuclear Society Annual Meeting, Atlanta (2009, roundtable keynote), International Symposium on Mathematical Programming, Chicago (2009, semi-plenary), SIAM Annual Meeting, Denver, (2009), US National Congress in Computational Mechanics, Columbus, (2009), INFORMS Annual Meeting (2009), Lehigh High Performance Computing Meeting (2009, plenary), SIAM Parallel Processing Conference, Seattle (2010), ANS Annual Meeting San Diego (2010), 2nd Verification and Validation Workshop, Myrtle Beach (2010), 12-th International Conference on Stochastic Programming, Halifax, (2010), Princeton University, Operations Research and Financial Engineering Colloquium (2010), University of Wisconsin, Computer Science Colloquium (2010),

- **2011-2015** SIAM Computational Science and Engineering Conference, Reno (2011), SIAM Optimization Meeting, Darmstadt, Germany, (2011), International Conference in Control Systems and Computer Science, Bucharest, Romania (plenary, 2011), IMA Workshop on UQ, Minneapolis, (2011), SAMSI Summer School on UQ, Albuquerque (invited lecturer, 2011), The DOE Applied Math Research PI Meeting 2011, (plenary), University of Texas, ICES, 2011 (Seminar), University of Pittsburgh 2012, SIAM UQ Conference 2012, University of Chicago 2012, the International Symposium on Mathematical Programming, Berlin, 2012; University of Illinois (the IMSE kick-off conference), 2012; DTRA CyberPhysical Networks Workshop, Washington DC, 2012; International Conference on Complementarity Problems, Singapore, 2012; Powertech 2013, Grenoble, 2013; ACCES Workshop, Aachen, 2013; SIAM Optimization Conference, San Diego, 2014; SIAM UQ Conference, Savannah 2014; International Conference on Complementarity Problems, Berlin, 2014.

PUBLICATIONS

Underlined authors were student or postdoctoral supervisees at the time of main work

JOURNAL PAPERS PUBLISHED OR IN PRINT

1. Cosmin G. Petra, Olaf Schenk, Mihai Anitescu. "Real-time Stochastic Optimization of Complex Energy Systems on High Performance Computers". Preprint ANL/MCS-P4068-0413. To appear in *Computing in Science and Engineering.*

2. Victor M. Zavala and Mihai Anitescu. "Scalable Nonlinear Programming Via Exact Differentiable Penalty Functions And Trust-Region Newton Method", Preprint ANL/MCS-P3014-0712. To appear in *SIAM Journal on Optimization*

3. Xiaoyan Zeng and Mihai Anitescu. "Sequential Monte Carlo Sampling in Hidden Markov Models of Nonlinear Dynamical Systems".To appear in *Applied Mathematics and Computation* ALso Preprint ANL/MCS-P1852-0311.

4. Oleg Roderick, Mihai Anitescu and Yulia Peet. "Proper orthogonal decompositions in multifidelity uncertainty quantification of complex simulation model". To appear in *International Journal of Computer Mathematics.* Preprint ANL/MCS-P4029-011.

5. Mihai Anitescu, Xiaoyan Zeng and Emil Constantinescu. "A Low-Memory Approach For Best-State Estimation Of Hidden Markov Models With Model Error". *SIAM J. NUMER. ANAL.* Vol. 52, No. 1, pp. 468495, 2014. Preprint ANL/MCS-P1919-0711.

6. Jie Chen, Lei Wang, And Mihai Anitescu. "A Fast Summation Tree Code For Matern Kernel", *SIAM J. SCI. COMPUT.*, Vol. 36, No. 1, pp. A289A309, 2014. Also Preprint ANL/MCS-P4001-1212.

7. Toby Heyn, Mihai Anitescu, Alessandro Tasora and Dan Negrut. "Using Krylov Subspace and Spectral Methods for Solving Complementarity Problems in Many-Body Contact Dynamics Simulation", *International Journal for Numerical Methods in Engineering*, Volume 95, Issue 7, pages 541561, 17 August 2013. Preprint ANL/MCS-P2099-0612.

8. Miles Lubin, J.A. Julian Hall, Cosmin G. Petra, Mihai Anitescu. "Parallel distributed-memory simplex for large-scale stochastic LP problems". *Computational Optimization and Applications* vol. 55, no. 3, pp. 571-596, 2013. Also, Preprint ANL/MCS-P2075-0412.

9. Michael L. Stein, Jie Chen and Mihai Anitescu, "STOCHASTIC APPROXIMATION OF SCORE FUNCTIONS FOR GAUSSIAN PROCESSES",*Annals of Applied Statistics*, Volume 7, Number 2 (2013), 1162-1191. Preprint ANL/MCSP-2091-0512.

10. A.Tasora, M.Anitescu, S.Negrini and D.Negrut. "A Compliant Visco-Plastic Particle Contact Model based on Differential Variational Inequalities". *International Journal of Nonlinear Mechanics.*; Volume 53, July 2013, Pages 212. Preprint ANL/MCS-P4013-0113.

11. Alessandro Tasora and Mihai Anitescu. "A complementarity-based rolling friction model for rigid contacts", Preprint ANL/MCS–P3020-0812.*Meccanica.* September 2013, Volume 48, Issue 7, pp 1643-1659. Also Preprint ANL/MCS–P3020-0812.

12. Hayes F. Stripling, Mihai Anitescu, and Marvin L. Adams." A Generalized Adjoint Framework for Sensitivity and Global Error Estimation in Time-Dependent Nuclear Reactor Simulations". *Annals of Nuclear Energy* (Special issue on Nuclear Reactor Safety Simulation and Uncertainty Analysis)Volume 52, February 2013, Pages 47-58. Also Preprint ANL/MCS-P1963-1011.

13. Emil M Constantinescu and Mihai Anitescu, "Physics-Based Covariance Models For Gaussian Processes With Multiple Outputs". *International Journal on Uncertainty Quantification*, Volume 3, No 1, pp 47-71, 2013. Preprint ANL/MCS-P1915-0711.

14. Michael Stein, Jie Chen, and Mihai Anitescu. "Difference Filter Preconditioning For Large Covariance Matrices". *SIAM Journal on Matrix Analysis and Applications* Vol. 33, No. 1, pp. 52-72, 2012. Preprint ANL/MCS-1888-0511.

15. Mihai Anitescu , Jie Chen , and Lei Wang , "A Matrix-Free Approach For Solving The Gaussian Process Maximum Likelihood Problem". *SIAM Journal on Scientific Computing* 2012, Vol. 34, No. 1, pp. A240-A262. Preprint ANL/MCS-P1857-0311.

16. Brian Lockwood and Mihai Anitescu. "Gradient-Enhanced Universal Kriging for Uncertainty Propagation". *Nuclear Science and Engineering*, Volume 170 , Number 2 , February 2012 , Pages 168-195. Preprint ANL/MCS-P1808-1110.

17. Miles Lubin, Cosmin Petra, and Mihai Anitescu "On the parallel solution of dense saddle-point linear systems arising in stochastic programming". *Optimization Methods and Software* Volume 27, Issue 4-5, 2012. Preprint ANL/MCS-P1798-1010.

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