

# BIJAN SEYED-NASROLLAH

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<https://bnasr.github.io>  
seyednasrollah@fas.harvard.edu  
GitHub: @bnasr  
(919) 599-4380

1295 S. Knoles Dr.  
PO Box 5693  
Flagstaff, AZ 86011

## ACADEMIC APPOINTMENTS

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<b>Harvard University</b> , Department of Organismic and Evolutionary Biology/ <b>Northern Arizona University</b> , School of Informatics, Computing, and Cyber Systems Postdoctoral Research Associate / Data Scientist	2017 - present
<b>Duke University</b> , Nicholas School of the Environment Doctoral Research and Teaching Assistant	2011 - 2017
<b>Research Institute of Petroleum Industry (Iran)</b> , Department of Energy and Environment Senior Researcher	2006 - 2011

## EDUCATION

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<b>Duke University</b> , Durham, NC Ph.D. in Quantitative Environmental Science Dissertation: "Ecosystem response to a changing climate: vulnerability, impact and monitoring" Advisors: Dr. Jim Clark (Chair), Dr. Jean-Christophe Domec, Dr. Alan Gelfand and Dr. Jennifer Swenson.	2017
<b>Sharif University of Technology</b> , Tehran, Iran M.Sc. in Mechanical Engineering, Energy Conversion Thesis: "Modeling of multi-phase flow in porous media" Advisor: Dr. Mehrdad T. Manzari	2006
<b>University of Semnan</b> , Semnan, Iran B.Sc. in Mechanical Engineering, Heat and Fluid Flow Thesis: "Numerical modeling of conductive heat transfer" Advisor: Dr. Farhad Talebi	2003

## SELECTED PEER-REVIEWED JOURNAL PUBLICATIONS

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12. **B. Seyednasrollah** and M. Kumar, "How net radiation on forested snowpack changes across a latitudinal gradient", *Hydrology*, in review.
  11. **B. Seyednasrollah**, A. M. Young, K. Hufkens, T. Milliman, M. A. Friedl, S. Frolking and A. D. Richardson, "Tracking vegetation phenology across diverse biomes using PhenoCam imagery: The PhenoCam Dataset v2.0", *Scientific Data*, in review.
  10. **B. Seyednasrollah** and J. S. Clark, "Nutrient-demanding species and drought vulnerability: the role of habitat heterogeneity", in review.
  9. **B. Seyednasrollah**, T. Milliman and A. D. Richardson, "Data extraction from digital repeat photography using xROI: An interactive framework to facilitate the process", *ISPRS Journal of Photogrammetry and Remote Sensing*, Volume 152, June 2019, Pages 132-144, doi:10.1016/j.isprsjprs.2019.04.009.
  8. M. S. Carbone, **B. Seyednasrollah**, T. T. Rademacher, D. Basler, J. Le Moine, S. Beals, J. Beasley, A. Greene, J. Kelroy and A. D. Richardson, "Flux Puppy an open source software application and portable system design for low-cost manual measurements of CO<sub>2</sub> and H<sub>2</sub>O fluxes", *Agricultural and Forest Meteorology*, Volume 274, 15 August 2019, Pages 1-6, doi:10.1016/j.agrformet.2019.04.012.

7. **B. Seyednasrollah**, J. C. Domec and J. S. Clark (2019) "Spatiotemporal sensitivity of thermal stress for monitoring canopy hydrological stress in near real-time", *Agricultural and Forest Meteorology*, Volumes 269-270, 15 May 2019, Pages 220-230, doi:10.1016/j.agrformet.2019.02.016.
6. A. D. Richardson, K. Hufkens, T. Milliman, D. M. Aubrecht, M. E. Furze, **B. Seyednasrollah**, M. B. Krassovski, J. M. Latimer, W. R. Nettles, R. R. Heiderman, J. M. Warren and P. J. Hanson (2018) "Ecosystem warming extends vegetation activity but heightens cold temperature vulnerability", *Nature*, Volume 560, pages 368-371 (2018), doi:10.1038/s41586-018-0399-1.
5. **B. Seyednasrollah**, J. J. Swenson, J. C. Domec and J. S. Clark (2018) "Leaf phenology paradox: why warming matters most where it is already warm", *Remote Sensing of Environment*, Volume 209, May 2018, Pages 446-455, ISSN 0034-4257, doi:10.1016/j.rse.2018.02.059.
4. J. S. Clark, D. Nemergut, **B. Seyednasrollah**, P. Turner and S. Zhang (2017). "Generalized joint attribute modeling for biodiversity analysis: Median-zero, multivariate, multifarious data", *Ecological Monographs*, 87(1), 34-56. doi:10.1002/ecm.1241.
3. **B. Seyednasrollah** and M. Kumar (2014). "Net radiation in a snow-covered discontinuous forest gap for a range of gap sizes and topographic configurations", *J Geophys Res-Atmos*, 119, 10, 32310, 342. doi:10.1002/2014JD021809.
2. **B. Seyednasrollah** and M. Kumar (2013). "Effects of tree morphometry on net snowcover radiation on forest floor for varying forest densities", *J Geophys Res-Atmos*, 118, 12, 5081-521, doi:10.1002/2012JD019378.
1. **B. Seyednasrollah**, M. Kumar and T. E. Link (2013). "On the role of vegetation density on net snow cover radiation at the forest floor", *J. Geophys. Res. Atmos*, 118, 8359-8374, doi:10.1002/jgrd.50575.

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#### PEER-REVIEWED DATASETS AND OPEN-SOURCE SOFTWARE APPLICATIONS

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11. **B. Seyednasrollah**, et al. (2019) "PhenoCam Dataset v2.0: Vegetation Phenology from Digital Camera Imagery, 2000-2018". ORNL Distributed Active Archive Center <https://doi.org/10.3334/ORNLDAAAC/1674>.
10. T. Milliman, **B. Seyednasrollah**, et al. (2019) "PhenoCam Dataset v2.0: Digital Camera Imagery from the PhenoCam Network, 2000-2018". ORNL Distributed Active Archive Center <https://doi.org/10.3334/ORNLDAAAC/1689>.
9. **B. Seyednasrollah**, D. Basler, S. Beals, J. Beasley, A. Greene, J. Kelroy, M. S. Carbone, and A. D. Richardson (2018), "FluxPuppy: Android Interface to Licor LI-820 and LI-840 gas analyzers". Zenodo. <http://doi.org/10.5281/zenodo.1438548>
8. A. D. Richardson, K. Hufkens, T. Milliman, D. M. Aubrecht, M. E. Furze, **B. Seyednasrollah**, M. B. Krassovski, and P. J. Hanson (2018), "SPRUCE Vegetation Phenology in Experimental Plots from Phenocam Imagery, 2015-2016." ORNL TESSFA (Oak Ridge National Lab's Terrestrial Ecosystem Science Scientific Focus Area (ORNL TES SFA)); Oak Ridge National Lab.(ORNL), Oak Ridge, TN (United States)
7. **B. Seyednasrollah**, T. Milliman and A. D. Richardson (2018), "xROI: A Toolkit to Delineate Region of Interests (ROI's) and Extract Time-series Data from Digital Repeat Photography Images". Zenodo. <http://doi.org/10.5281/zenodo.1202273>
6. **B. Seyednasrollah**, J. J. Swenson, J. C. Domec, J. S. Clark (2018), "phenoCDM: Continuous Development Models for Incremental Time-Series Analysis". Zenodo. <http://doi.org/10.5281/zenodo.1204614>
5. **B. Seyednasrollah**, "drawROI: An interactive toolkit to extract phenological time series data from digital repeat photography". Zenodo. <http://doi.org/10.5281/zenodo.1066588>
4. **B. Seyednasrollah**, "hazer: Quantifying haze factor for RGB images to identify cloudy and foggy weather", Zenodo. <http://doi.org/10.5281/zenodo.1008568>, 2017.
3. **B. Seyednasrollah**, "solrad: To calculate solar radiation and related variables based on location, time and topographical conditions", Zenodo. <http://doi.org/10.5281/zenodo.1249673>, 2016.

2. **B. Seyednasrollah**, “GaRM: A Forest Gap Radiation Model”, Zenodo. <http://doi.org/10.5281/zenodo.840998>, 2014.
1. **B. Seyednasrollah**, “FoRM: A physically based forest radiation model”, Zenodo. <http://doi.org/10.5281/zenodo.841001>, 2014.

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#### INVITED TALKS, CONFERENCE PRESENTATIONS AND OTHER PUBLICATIONS

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34. **B. Seyednasrollah**, T. E. Milliman, M. A. Friedl, A. D. Richardson, “How Do Deciduous Forests of North America Respond to Climate Change?”, 12th North American Forest Ecology Workshop 2019 Flagstaff AZ, USA, June 2019.
33. Carbone, M.S., **B. Seyednasrollah**, T.T. Rademacher, D. Basler, J.M. Le Moine, S. Beals, J. Beasley, A. Greene, J. Kelroy, and A.D. Richardson, “Flux Puppy - an open-source software application and portable system design for low-cost manual measurements of CO<sub>2</sub> and H<sub>2</sub>O fluxes”, 12th North American Forest Ecology Workshop 2019 Flagstaff AZ, USA, June 2019.
32. **B. Seyednasrollah (invited)**, A. D. Richardson, “PhenoCam data and validation of remotely sensed vegetation indices”, NASA CEOS LPV Workshop 2018, Washington DC, USA, December 2018.
31. **B. Seyednasrollah (invited)**, K. Duffy, A. M. Young, A. D. Richardson, “Flux-PhenoCam Data Fusion to Understand Surface Energy Balance”, NEON Surface Atmosphere Exchange Workshop 2018, Washington DC, USA, December 2018.
30. **B. Seyednasrollah**, T. E. Milliman, M. A. Friedl, A. D. Richardson, “Phenology of temperate deciduous forests: Roles of energy and moisture”, American Geophysical Union Fall Meeting 2018, Washington, DC, USA, December 2018.
29. E. K. Melaas, **B. Seyednasrollah**, A. D. Richardson, K. Hufkens, M. A. Friedl, “Using PhenoCams and Landsat to improve understanding of photoperiod control on spring phenology of deciduous forests in the Eastern US”, American Geophysical Union Fall Meeting 2018, Washington, DC, USA, December 2018.
28. M. Kumar, X Chen, **B. Seyednasrollah**, T. Zi, T. E. Link, B. L. McGlynn, J. D. Albertson, “Improving process representations in models: An exercise in scientific exploration or a societal need?”, American Geophysical Union Fall Meeting 2018, Washington, DC, USA, December 2018.
27. **B. Seyednasrollah**, T. Milliman, A. D. Richardson, “Tackling challenges of extracting time-series data from digital repeat photography”, Early Career Researcher Symposium 2018, Computing Community Consortium, Washington, DC, USA, August 2018.
26. **B. Seyednasrollah (invited)**, A. Young, K. Duffy, T. Milliman, A. D. Richardson, “Phenocams: Tracking vegetation activity from digital cameras”, Data Institute 2018, National Ecological Observatory Network, Boulder, CO, USA, July 2018.
25. **B. Seyednasrollah**, T. E. Milliman, K. Hufkens, M. Kosmala, A. D. Richardson, “An interactive toolkit to extract phenological time series data from digital repeat photography”, American Geophysical Union Fall Meeting 2017, New Orleans, LA, USA, December 2017.
24. **B. Seyednasrollah (invited)**, J. Clark, “Understanding Phenology across Scales and Improving Linkages to Ecosystem Functions”, American Geophysical Union Fall Meeting 2015, San Francisco, CA, USA, December 2015.
23. **B. Seyednasrollah**, J. Clark, “Attributing the effects of climate on phenology change suggests high sensitivity in coastal zones”, American Geophysical Union Fall Meeting 2015, San Francisco, CA, USA, December 2015.
22. J. Clark, A. Berdanier, **B. Seyednasrollah**, Brad Tomasek, “Forecasting the forest and the trees: consequences of drought in competitive forests”, American Geophysical Union Fall Meeting 2015, San Francisco, CA, USA, December 2015.
21. J. Clark, **B. Seyednasrollah**, B. Tomasek, “Forecasting the forest and the trees: climate impacts from individuals to communities to traits”, Coweeta LTER Summer Symposium and Meeting Agenda, Coweeta, NC, USA, June 2015.

20. **B. Seyednasrollah**, "Dynamics of forest green-up across different ecosystems", Joint Ecology / Marine Lab (JEM) Symposium 2015, Duke University, Beaufort, NC, USA, November 2015.
19. **B. Seyednasrollah**, J. S. Clark, J.C. Domec, "Drought-induced stomatal closure rising canopy temperature observed from space", Ecological Society of America Annual Meeting 2015, Baltimore, MD, USA, August 2015.
18. J. S. Clark, B. Beckage, A. Berdanier, M. Dietze, C. M. Gough, B. Hardiman, M. Kwit, J. Mohan, S. M. Pearson, W. J. Platt, A. Schwantes, **B. Seyednasrollah**, B. J. Tomasek, C. W. Woodall, P. H. Wyckoff, K. Zhu, "Forecasting the forest and the trees: Consequences of competition and climate for biodiversity change", Ecological Society of America Annual Meeting 2015, Baltimore, MD, USA, August 2015.
17. J. HilleRisLambers, I. K. Breckheimer, **B. Seyednasrollah**, J. S. Clark, J. F. Franklin, A. J. Larson, J. A. Freund, "Competitive interactions between tree species will slow compositional turnover with climate change", Ecological Society of America Annual Meeting 2015, Baltimore, MD, USA, August 2015.
16. **B. Seyednasrollah (invited)**, A. Latimer, L. Johnson, J. Hille Ris Lambers, "Applications of Joint Species Distribution Modeling with Case Studies", The Statistical and Applied Mathematical Sciences Institute (SAMSI), ECOL: Transition Workshop 2015, Durham, NC, USA, May 2015.
15. **B. Seyednasrollah**, "How fast do forests green up in different habitats?", Duke University Ecology Symposium 2015, Beaufort, NC, USA, April 2015.
14. A. Latimer, I. Breckheimer, **B. Seyednasrollah**, N. Johnson, D. Wilson, J. Hille Ris Lambers, M. Harsch, M. Short, L. Johnson and C. Davis, "Joint Species Distribution Modeling in the Pacific Northwest", The Statistical and Applied Mathematical Sciences Institute (SAMSI), ECOL: Transition Workshop 2015, Durham, NC, USA, March 2015.
13. M. Kumar, X. Chen, **B. Seyednasrollah**, A. Winstral, M. Reba, D. Marks, "Assessment of Hydrologic Impacts of Snowdrift in a Snow Dominated Watershed", American Geophysical Union Fall Meeting 2014, San Francisco, CA, USA, December 2014.
12. M. Kumar, **B. Seyednasrollah**, T. E. Link, "In search of radiation minima for balancing the needs of forest and water management in snow dominated watersheds", American Geophysical Union Fall Meeting 2013, San Francisco, CA, USA, December 2013.
11. **B. Seyednasrollah**, M. Kumar, "Using Forest Radiation Model (FoRM) to Quantify the Role of Canopy Coverage on Net Snow Cover Radiation", American Geophysical Union Fall Meeting 2013, San Francisco, CA, USA, December 2013.
10. **B. Seyednasrollah**, M. Kumar, "Understanding the Role of Canopy Coverage and Tree Morphometry on Net Snow Cover Radiation Using Forest Radiation Model (FoRM)", CUAHSI Hydroinformatic 2013, Logan, UT, USA, July 2013.
9. T. E. Link, M. Kumar, J. Pomeroy, **B. Seyednasrollah**, C. Ellis, R. Lawler, and R. Essery, "Opportunities and challenges to conserve water on the landscape in snow-dominated forests: The quest for the radiative minima and more...", American Geophysical Union Fall Meeting 2012, San Francisco, CA, USA, December 2012.
8. **B. Seyednasrollah**, M. Kumar, T. E. Link, "Looking for Radiation Optimality on Snow Covered Forest Floor", American Geophysical Union Fall Meeting 2012, San Francisco, CA, USA, December 2012.
7. **B. Seyednasrollah**, M.Khosravy-el-Hossani, "Exergy Analysis of excess air variation in boilers", International Conference on Advances in Mechanical Engineering (ICAME) 2010, Kuala Lumpur, Malaysia, December 2010.
6. **B. Seyednasrollah**, M.Khosravy-el-Hossani, "Investigation of Excess Air Variations Effects on Dry Flue Gas Loss", International Conference on Advances in Mechanical Engineering (ICAME) 2010, Kuala Lumpur, Malaysia, December 2010.
5. R. M. Khorsani, **B. Seyednasrollah**, M. T. Manzari and S. K. Hannani. "Dimensional numerical simulation of hydrocarbon reservoirs using a black oil model implicit finite difference method", in Sharif Journal of Mechanical Engineering, 2010, Vol. 26, No. 1. (In Persian)

4. F. Talebi, **B. Seyednasrollah** and F. Yousefi. "Analysis and optimization of reducing steady state time for heating systems", in International Journal Of Advanced Design And Manufacturing Technology, 2009, Vol. 2 No. 2. (In Persian)
3. F. Yousefi, **B. Seyednasrollah**, F. Talebi, "Global Analysis for Two Effective Method to Reduction of Control Time in Steady State of Thermal Systems", The Annual Conference (International) on Mechanical Engineering (ISME) 2008, Kerman, Iran, July 2008.
2. **B. Seyednasrollah**, S.E. Hossein. , F. Talebi, "An Effective Method to Reduction of Control Time in Steady State of Thermal Systems", The Annual Conference (International) on Mechanical Engineering (ISME) 2007, Tehran, Iran, July 2007
1. F. Talebi., **B. Seyednasrollah**, "An Effective Method to Reduction of Control Time in Steady State Convectional Heat Transfer", The Annual International Conference of Mechanical Engineering (ISME) 2005, Isfahan, Iran, July 2005.

#### FEATURED IN THE MEDIA

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**KNAU Arizona Public Radio:**Earth Notes: Drought Eye, <https://www.knau.org/post/earth-notes-drought-eye/>, June 26, 2019.

**LTER Network Science Update:** Keeping an eye out for drought, <https://lternet.edu/stories/eye-out-for-drought/>, May 29, 2019.

**KNAU Radio:** Interview on monitoring drought in near real-time and "open-data, open-source science", April 11, 2019.

**NAU News:** Maybe I could just do this: NAU Researcher Helps Develop Near Real-time Drought Monitoring Tool, <https://news.nau.edu/drought-monitoring-tool/>, April 2, 2019.

**El Heraldo:** El Cambio Climático Desde Varios Frentes, <https://www.elheraldo.co/medio-ambiente/el-cambio-climatico-desde-varios-frentes-612018>, March 27, 2019.

**Weather Nation:** A Faster and More Accurate Way to Monitor Drought, <http://www.weathernationtv.com/news/a-faster-and-more-accurate-way-to-monitor-drought/>, March 13, 2019.

**Futurity:** Free Drought Eye Maps Depict Thermal Stress, <https://www.futurity.org/droughts-map-1999812/>, March 5, 2019.

**Science Daily:** Thermal Stress Measurements Sound the Alarm About Drought Conditions Sooner, <https://www.sciencedaily.com/releases/2019/03/190304154858.htm>, March 4, 2019.

**AAAS EurekAlert:** A faster, more accurate way to monitor drought, [https://www.eurekalert.org/pub\\_releases/2019-03/du-afm030419.php](https://www.eurekalert.org/pub_releases/2019-03/du-afm030419.php), March 4, 2019.

**Duke University:** A Faster, More Accurate Way to Monitor Drought, <https://nicholas.duke.edu/about/news/faster-more-accurate-way-monitor-drought>, March 4, 2019.

#### TEACHING EXPERIENCE

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**Co-founder**, SciCademy: A Science Academy for Teaching Quantitative Science 2018-present

##### Workshop Organizer / Instructor

- Introduction to PhenoCam Data Products and Software Tools in "New Advances in Land Carbon Cycle Modeling" Workshop: (Northern Arizona University) 2019
- Studying Biological Impacts of Environmental Change Using Repeat Photography: Introduction to PhenoCam Data Products and Software Tools (AGU Fall Meeting) 2018
- Studying Biological Impacts of Environmental Change Using Repeat Photography: Introduction to PhenoCam Data Products and Software Tools (Northern Arizona University) 2018
- Source Control and Reproducible Science (workshop for postdocs and graduate students, Northern Arizona University) 2018

- Certificate in College Teaching (CCT), Duke University** 2017
- Training on “Fundamentals of College Teaching”
  - Training on “College Teaching and Visual Communications”
  - Teaching Experience
  - Peer Observation of Teaching

#### **Instructor**

- Ecohydrology using Mathematica and MATLAB, Duke University (5 PhD students, teaching, holding office hours) 2016
- Visual Basic Programming for Engineering, Research Institute of Petroleum Industry (20 senior engineers, designing the course, teaching, troubleshooting sessions) 2010

#### **Guest Lecturer**

- Machine Learning Applications, Northern Arizona University (course taught by Dr. Paul Beier) 2019
- Environmental Science and Policy, Duke University (course taught by Dr. Joel Meyer) 2017
- Ecohydrology, Duke University (course taught by Dr. Amilcare Porporato) 2016
- Watershed Hydrology, Duke University (course taught by Dr. Gaby Katul) 2014
- Hydrology Modeling, Duke University (course taught by Dr. Mukesh Kumar) 2012,2013

#### **Teaching Assistant**

- Introduction to Environmental Science and Policy, Duke University (85 undergraduates, leading discussion groups, grading, holding office hours) 2016
- Ecohydrology, Duke University (15 undergraduates/graduates, holding office hours) 2015
- California Water Crises, Duke University (12 graduates, organizing course materials, holding office hours) 2015
- Watershed Hydrology, Duke University (15 graduates, holding office hours, leading problem solving sessions, grading) 2014
- Hydrology Modeling, Duke University (4+ graduates, co-teaching, grading, holding office hours) 2012, 2013
- GIS for Water Quantity and Quality Assessment, Duke University (20+ graduates, leading problem solving sessions, lab assistant, grading, holding office hours) 2012, 2013, 2014
- Heat Transfer, University of Semnan (20+ undergraduates, leading problem solving sessions) 2003
- Fluid Mechanics, University of Semnan (20+ undergraduates, leading problem solving sessions) 2003
- Dynamics and Statics, University of Semnan (2 undergraduates, private tutoring) 2002, 2003
- Thermodynamics, University of Semnan (3 undergraduates, private tutoring) 2002, 2003

#### **MENTORING AND ADVISING**

##### **Graduate Student / Visting Scholars**

- Minkyu Moon (PhD student, Continuous Development Phenology Model, Boston University) 2019 -
- Tong Qiu (PhD student, State-Space Phenology Model, University of North Carolina at Chapel Hill) 2018 -
- Stephanie Arcusa (PhD student, CLM Project, Northern Arizona University) 2018 -
- Shaokang Zhang (Visiting Scholar, PhenoCam Image Processing, South China Botanical Garden) 2018

##### **Undergraduate Students**

- Kevyn Sisante (Undergraduate student, machine learning project, Northern Arizona University) 2019
- Kevyn Sisante (Undergraduate student, work-study program, Northern Arizona University) 2018
- Amberlee Pavey (Undergraduate student, work-study program, Northern Arizona University) 2018
- Jasque Saydyk (Undergraduate student, Open-source software, Northern Arizona University) 2018
- Evan Russell (Undergraduate student, Open-source software, Northern Arizona University) 2018
- Ryan Ladwig (Undergraduate student, Open-source software, Northern Arizona University) 2018
- Yuxuan Zhu (Undergraduate student, Open-source software, Northern Arizona University) 2018

## AWARDS, FUNDING, FELLOWSHIPS AND RECOGNITIONS

<b>NASA Advanced Information Systems Technology</b> , “The bridge from canopy condition to continental scale biodiversity forecasts, including the rare species of greatest conservation concern”, Jennifer Swenson (PI), James Clark (Co-PI), Alan Gelfand (Co-I), Amanda Schwantes (Co-I) and Bijan Seyednasrollah (Co-I).	Pending
<b>NEON-ESA Early Career Scholars</b> , Ecological Society of America	2019
<b>CUAHSI Travel Award</b> , CUAHSI Conference on Hydroinformatics, Provo, UT	2019
<b>SAMSI Travel Award, Deep Learning</b> , Statistical & Applied Mathematical Sciences Inst., Durham, NC	2019
<b>NEON Data Institute Fellowship</b> , National Ecological Observatory Network	2018
<b>SAMSI Travel Award, Quasi-Monte Carlo</b> , Statistical & Applied Mathematical Sciences Inst., Durham, NC	2017
<b>Outstanding Accomplishments Fellowship</b> , The Duke University Graduate School Ecosystem response to a changing climate: vulnerability, impact and monitoring, \$22,470	2016 - 2017
<b>The Summer Research Fellowship</b> , The Duke University Graduate School Remotely sensed canopy thermal stress to monitor droughts in near real-time, \$5,500	2016
<b>Bass Online Apprentice Fellowship</b> , Duke University, \$11,235	2016
<b>Bass Instructional Teaching Assistant Fellowship</b> , Duke University, \$11,235	2015
<b>Summer Research Award</b> , Nicholas School of the Environment, Duke University Long term monitoring of leaf out phenology using satellite observation at large scales, \$5,500	2015
<b>Pathfinder Fellowship</b> , The Consortium for the Advancement of Hydrologic Science Inc. (CUAHSI) Role of vegetation density and pattern on net snow cover radiation at the forest floor, \$4,996	2014
<b>NASA Snow School Travel Award</b> , NASA Snow School for Practitioners and Modelers, Fraser, CO	2014
<b>CUAHSI Travel Award</b> , CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT	2013
<b>NSF Travel Award</b> , EarthCube Modeling Workshop for the Geosciences, Boulder, CO	2013
<b>National Elite</b> , The National Association of Elites (Iran)	2008
<b>1st Departmental Rank</b> , Mechanical Engineering Department, University of Semnan, Iran	2003
<b>34th National Rank</b> , Nationwide (Iran) Entrance Exam for Graduate Study in Mechanical Engineering	2003
<b>56th National Rank</b> , Nationwide (Iran) Entrance Exam for Graduate Study in Aerospace Engineering	2003

## SERVICES AND OUTREACH

### Editorial Services:

#### Reviewer (since 2015):

- Agricultural and Forest Meteorology (x3)	2019
- Biogeosciences	
- Forests	
- Science of the Total Environment	
- Sustainability	
- Water (x4)	
- Atmosphere	2018
- Climate Research	
- Data (x2)	
- Frontiers in Ecology and the Environment	
- International Journal of Digital Earth	
- ISPRS International Journal of Geo-Information	
- Methods in Ecology and Evolution	
- Remote Sensing	
- Remote Sensing of Environment (x3)	

- Science of the Total Environment
- Agricultural and Forest Meteorology 2017
- Asia-Pacific Journal of Chemical Engineering 2016
- Ecosphere
- Soild Earth
- Journal of Geophysical Research: Atmospheres 2015

**Editor:** Duke Science Review 2016

**Chairperson:** International Conference on Advances in Mechanical Engineering 2010 (ICAME2010) 2010

**Editorial Board:** Mechanical Engineering Magazine, Iranian Society of Mechanical Engineers 2004-2007

#### **Professional and Volunteer Services:**

- Science in the Classroom**, 6th Grade Students of the Sinagua Middle School, Flagstaff, AZ 2019
- Judge**, Virtual Poster Showcase, American Geophysical Union (AGU) 2018
- Judge**, Outstanding Student Presentation Award, American Geophysical Union, New Orleans, LA 2017
- VIP Consultant in Modeling**, American Statistical Association, DataFest Competition, Durham, NC 2016
- Statistician**, United Nations Human Settlements Programme, UN-Habitat 2016 - 2017
- Competition Judge**, Student Academy of Science, State Science and Engineering Fair, Raleigh, NC 2016
- Competition Judge**, Student Academy of Science, Reg. Science and Engineering Fair, Durham, NC 2015
- Collaborator**, Working group on "Ecology: Multivariate Models, Climate and Biodiversity", Statistical and Applied Mathematical Sciences Institute (SAMSI) 2014 - 2015
- Member of the Diversity & Inclusion Committee**, Nicholas School, Duke University 2013 - 2015
- Member of the Software Council**, Research Institute of Petroleum Industry, Iran 2010 - 2011
- Member of the Undergraduate Scientific Committee**, University of Semnan, Iran 2000 - 2001

#### SKILLS

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##### **Programming and Scripting:**

C/C++/C#, R, Python, Markdown, MATLAB, Mathematica, Java, VBA, Fortran, Pascal, Shell, HTML/CSS, Object Oriented Programming (OOP), High Performance Computing (HPC), Multithreaded Programming, OpenMP and MPI, Socket programming, programming on Unix and Windows based platforms.

##### **Quantitative, Geospatial and Visualizations:**

Hierarchical Modeling, Bayesian Statistics, Markov Chain Monte Carlo (MCMC), Machine Learning, GIS, Geospatial Analysis, Remote Sensing, Data Elevation Model (DEM) Processing, Image Processing, Optimization, Numerical Methods, Finite Difference Methods, Finite Element Methods, Finite Volume Methods