

Bijan Seyednasrollah, Ph.D.

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US Work Authorization / Residency Status: US Permanent Resident (Green Card Holder)

HIGHLIGHTS	<ul style="list-style-type: none"> - Multi-disciplinary data scientist - Advanced knowledge in image understanding, data fusion techniques, and optimization algorithms - Proficient in numerical analysis, data analysis, mathematical modeling, and estimation theory - Proficient developer in multiple platforms and programming languages, e.g., R, Python, C/C++, Fortran - Strong quantitative, engineering and data science background and advanced knowledge in remote sensing - Presented for technical and non-technical audience at international and professional meetings - Developed several R-packages on image processing, statistics, and data wrangling, with 20,000+ downloads - Developed several web-based geospatial and image processing applications based on R Shiny - Led efforts on big data processing: 40 million PhenoCam images + one million new images per month
EDUCATION	<p>Ph.D. in Quantitative Environmental Science, Duke University, Durham, NC, USA 2017</p> <p>M.Sc. in Mechanical Engineering (Energy Conversion), Sharif University of Technology, Tehran, Iran 2006</p> <p>B.Sc. in Mechanical Engineering (Heat and Fluid Flow), University of Semnan, Semnan, Iran 2003</p>
CERTIFICATES	<p>IBM Data Science Professional Certificate (9 Courses and Capstone Project in Python and SQL) Fundamentals, Methodology, Data Analysis, Machine Learning, Visualizations, and Databases using Python and SQL https://www.coursera.org/account/accomplishments/specialization/certificate/RUEYGTMR85UK</p> <p>Data Science: Foundations using R Specialization by Johns Hopkins University (5 Courses in R) https://www.coursera.org/account/accomplishments/specialization/certificate/3TN8LANSENV5</p>
PROFESSIONAL EXPERIENCE	<p>Environmental Data Scientist / Geospatial Image Scientist 2017- Harvard University / Northern Arizona University (PhenoCam Network)</p> <ul style="list-style-type: none"> - Leading data curation of the PhenoCam Dataset, a total of 2500 site-years of data from more than 600 sites around the globe: https://doi.org/10.3334/ORNLDAAAC/1674 - Developed web-based applications for interactive image processing and environmental science applications, e.g.: DrawROI App: http://phenocam.nau.edu/drawroi/ and Tree Ring Image Analysis and Database: http://phenocam.nau.edu/triad - Developed R packages including <i>xROI</i>, <i>phenocamapi</i>, <i>hazer</i> to facilitate data and image processing - Organized technical workshops on image processing and quantitative methods for environmental sciences, e.g., https://www.neonscience.org/agu-2018-phenocam <p>Doctoral Research Assistant / Quantitative Environmental Scientist 2011-2017 Duke University, Nicholas School of the Environment</p> <ul style="list-style-type: none"> - Designed and developed hierarchical state-space model to study climate change impacts across the continental U.S. using daily MODIS remotely sensed reflectance imagery - Designed and developed drought monitoring interface across the US using MODIS imagery: http://phenocam.nau.edu/droughteye/ - Developed physics-based models (FoRM and GaRM) to quantify energy fluxes in watersheds - Served as Teaching Assistant for course "GIS for Water Quantity and Quality Assessment" <p>Senior Researcher / Research and Development Engineer 2006-2011 Research Institute of Petroleum Industry, Department of Energy and Environment, Iran</p> <ul style="list-style-type: none"> - Developed a 3D model of multiphase flow in porous media in C/C++ to simulate oil/gas reservoirs - Developed Energy Performance and Assessment Tools in C# to audit energy in power plants - Developed Pars Basin Modeler (PBM) in C/C++/Fortran to model sedimentary basins
SKILLS	<p>Programming and Scripting:</p> <ul style="list-style-type: none"> - R, C/C++/C#, Markdown, MATLAB, Python, Mathematica, Java, VBA, Fortran, Pascal, Shell, HTML/CSS - Object Oriented Programming (OOP), High Performance Computing (HPC), Multithreaded Programming <p>Quantitative, Geospatial and Visualizations:</p> <ul style="list-style-type: none"> - Hierarchical Modeling, Bayesian Statistics, Markov Chain Monte Carlo (MCMC), Machine Learning, Optimizations - GIS, Geospatial Analysis, Remote Sensing, Data Elevation Model (DEM) Processing, Image Processing

SELECTED AWARDS	NASA Advanced Information Systems Technology , “The bridge from canopy condition to continental scale biodiversity forecasts, including the rare species of greatest conservation concern”, J. Swenson (PI), B. Seyednasrollah (Co-I), \$574,926	2020
	ESA Early Career Scholar Award , Ecological Society of America	2019
	NEON Data Institute Fellowship , National Ecological Observatory Network	2018
	Outstanding Accomplishments Fellowship , Duke University, \$22,470	2017
	Pathfinder Fellowship , The Consortium for the Advancement of Hydrologic Science Inc. (CUAHSI), \$4,996	2014
SELECTED PUBLICATIONS	Seyednasrollah, B., A. M. Young, X. Li, T. Milliman, T. Ault, S. Froking, M. Friedl, A. D. Richardson (2020) “Sensitivity of deciduous forest phenology to environmental drivers: Implications for climate change impacts across North America”, <i>Geophysical Research Letters</i> , 47, e2019GL086788.	
	Seyednasrollah, B., A. M. Young, K. Hufkens, T. Milliman, M. A. Friedl, S. Froking and A. D. Richardson (2019) , “Tracking vegetation phenology across diverse biomes using PhenoCam imagery: The PhenoCam dataset v2.0”, <i>Scientific Data</i> , Volume 6, 22	
	Seyednasrollah, B., T. Milliman and A. D. Richardson (2019) , “Data extraction from digital repeat photography using xROI: An interactive framework to facilitate the process”, <i>ISPRS Journal of Photogrammetry and Remote Sensing</i> , Volume 152, June 2019, Pages 132-144	
	Seyednasrollah, B., J. C. Domec and J. S. Clark (2019) , “Spatiotemporal sensitivity of thermal stress for monitoring canopy hydrological stress in near real-time”, <i>Agricultural and Forest Meteorology</i> , Volumes 269270, 15 May 2019, Pages 220-230.	
	Seyednasrollah, B., J. J. Swenson, J. C. Domec and J. S. Clark (2018) , “Leaf phenology paradox: Why warming matters most where it is already warm”, <i>Remote Sensing of Environment</i> , Volume 209, May 2018, Pages 446-455, ISSN 0034-4257.	
SELECTED MEDIA COVERAGE	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
	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
	Science Daily: Thermal Stress Measurements Sound the Alarm About Drought Conditions Sooner https://www.sciencedaily.com/releases/2019/03/190304154858.htm	March 4, 2019
REFERENCES	Dr. James S. Clark Nicholas School of the Environment Duke University, PO Box: 90328, Durham, NC, 27708 +1 (919) 613-8036, jimclark@duke.edu	
	Dr. Andrew D. Richardson School of Informatics, Computing, and Cyber Systems Center for Ecosystem Science and Society Northern Arizona University, PO Box 5693, Flagstaff, AZ 86011 +1 (928) 523-3049, andrew.richardson@nau.edu	
	Dr. Mark A. Friedl Department of Earth and Environment Boston University, CAS 439E, Boston, MA 02215 +1 (617) 353-5745, friedl@bu.edu	