

Bijan Seyednasrollah, Ph.D.

<https://bnasr.github.io>
 bijan.s.nasr@gmail.com
 GitHub: @bnasr

4343 E Soliere Ave, #1086
 Flagstaff, AZ 86004
 (919) 599-4380

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

HIGHLIGHTS	<ul style="list-style-type: none"> - Multi-disciplinary data scientist with 15+ years of experience in computational/data science and engineering - Leading efforts on big data processing: 40 million PhenoCam images + one million new images per month - Advanced knowledge in image understanding, data fusion techniques, and optimization algorithms - Proficient in numerical analysis, data analysis, and 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 - 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 - Regularly communicated with 250+ in-site technicians and scientists who are distributed around the world - Refereed 50+ articles for top peer-reviewed journals in image processing, data science, remote sensing - Organized and taught technical workshops for lay and technical audience at professional meetings - Strong writing skills as proven in publications in top peer-reviewed journals of quantitative topics - Strong communication skills as proven in presentations for lay and technical audience at professional meetings - Strong connections with the academic community in science and engineering in top R1 universities and labs
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</p> <p>Data Science: Foundations using R Specialization by Johns Hopkins University (5 Courses in R)</p>
PROFESSIONAL EXPERIENCE	<p>Lead Data Scientist / 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 - Applying Machine Learning and Deep Learning methods for image calcification and clustering <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	Programming and Scripting: <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 Quantitative, Geospatial and Visualizations: <ul style="list-style-type: none"> - Hierarchical Modeling, Bayesian Statistics, Markov Chain Monte Carlo (MCMC), Optimizations - Machine Learning, Deep Learning, CNN, TensorFlow, Clustering and Classification Methods - 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 June 26, 2019 https://www.knau.org/post/earth-notes-drought-eye/ LTER Network Science Update: Keeping an eye out for drought May 29, 2019 https://lternet.edu/stories/eye-out-for-drought/ Weather Nation: A Faster and More Accurate Way to Monitor Drought March 13, 2019 http://www.weathernationtv.com/news/a-faster-and-more-accurate-way-to-monitor-drought/ Science Daily: Thermal Stress Measurements Sound the Alarm About Drought Conditions Sooner March 4, 2019 https://www.sciencedaily.com/releases/2019/03/190304154858.htm	