Bijan Seyednasrollah, Ph.D.

https://bnasr.github.io
bijan.s.nasr@gmail.com
GitHub: @bnasr   Twitter: @DrEcoInfo

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

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

HIGHLIGHTS

- Multidisciplinary Lead Data Scientist with 17 Years Experience
- Certified TensorFlow Developer by DeepLearning.AI
- Developer Many R Packages, Downloaded 40,000+ Times
- Served as Senior R&D Engineer in the Energy and Environment Industries
- Proficient in Machine Learning, Image Processing, Mathematical Modeling, and Remote Sensing,
- Proficient Developer in R, Python, C/C+, Fortran, Shiny, GDAL on Unix-based Systems
- Organized and Taught Quantitative Workshops for Diverse Audience
- Strong Writing Skills as Demonstrated in Over 20 Scientific Articles in Top Peer-Reviewed Journals
- Strong Communication Skills as Demonstrated in Presentations for the Lay and Technical Audience at International Meetings
- Strong Connections with the Academic Community in Leading Universities and National Labs
- Refereed 60+ Articles for Top Peer-Reviewed Journals in Quantitative Science, Modeling and Remote Sensing

EDUCATION

Ph.D. in Quantitative Environmental Science (Remote Sensing - Climate Change), Duke University, Durham, NC, USA	2017
M.Sc. in Mechanical Engineering (Energy Conversion - Computational Methods), Sharif University of Technology, Iran	2006
B.Sc. in Mechanical Engineering (Heat and Fluid Flow - Numerical Modeling), University of Semnan, Iran	2003

CERTIFICATES

Professional Certificate: DeepLearning.AI TensorFlow Developer (4 Courses on DL, CNN, NLP and Timeseries)

Professional Certificate: IBM Data Science (9 Courses + Capstone on ML & Visualization in Python and SQL)

Specialization: Data Science Foundations using R Specialization by Johns Hopkins University (5 Courses on Data Science in R)

SKILLS

Programming and Scripting:
- R, Python, C/C++/C#, Markdown, MATLAB, Python, Mathematica, Java, VBA, Fortran, Shell, HTML/CSS
- Object Oriented Programming (OOP), High Performance Computing (HPC), Multithreaded Programming

Quantitative, Geospatial and Visualizations:
- Hierarchical Modeling, Bayesian Statistics, Markov Chain Monte Carlo (MCMC), Optimizations
- Machine Learning, Deep Learning, Neural Network, Natural Language Processing, Sequence Modeling
- GIS, Geospatial Analysis, Remote Sensing, Data Elevation Model (DEM) Processing, Image Processing
- GDAL, ggplot2, data.table, dplyr, Shiny, NumPy, SciPy, Pandas, Scikit-learn, Matplotlib, TensorFlow, Keras

PROFESSIONAL EXPERIENCE

Lead Data Scientist / Geospatial Image Scientist
PhenoCam Network (Harvard University / Northern Arizona University)
- Led data management of the PhenoCam network, 40+ million images from 650+ sites around the globe
- Designed data pipeline for translating raw data to curated, quality checked, and processed final products
- Developed image/data processing routines in R/Python to extract meaningful insight from variety of data types including: images, Hyperspectral, Rasters, Shapefiles, JSON, geoJSON, LiDAR, surveyed data, HDF, netCDF and more.
- Developed Machine Learning methods and applied Deep Learning routines to extract insight from digital images
- Developed web-based applications for interactive image processing
- Developed R packages including *xROI*, solrad, *phenocamapi*, *hazer* for data and image processing, 30,000+ downloads

2017-now

Doctoral Research Assistant / Quantitative Environmental Scientist
Duke University, Nicholas School of the Environment
- Designed and developed hierarchical models to study climate change impacts across the U.S. using satellite imagery
- Developed nationwide drought monitoring interface using remote sensing imagery
- Developed physics-based models (FoRM and GaRM) in C/C++/MATLAB to quantify energy fluxes in watersheds

2011-2017

Senior Researcher / Research & Development Engineer
Research Institute of Petroleum Industry, Department of Energy and Environment, Iran
- Led the backend development team
- Managed R&D projects from the oil and gas industry
- Developed a 3D model of multiphase flow simulator in porous media in C/C++/Fortran to simulate oil/gas reservoirs
- Developed Energy Performance and Assessment Tools in C# to audit energy in power plants

2006-2011

Director of Mechanical Engineering Magazine
Iranian Society of Mechanical Engineers (ISME)
- Managing the team of editors and staff for the review and publication process
- Editing and reviewing scientific articles
- Preparing educational materials on Energy and Environment

2004-2007

Power Plant Design Engineer
TPF Consulting Engineers
- Prepared Construction Documents for Petrochemical Plants
- Designed Heat Exchangers and Cooling Towers

2003-2004

AWARDS

NASA Advanced Information Systems Technology, National Aeronautics and Space Administration	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	2017
Pathfinder Fellowship, The Consortium for the Advancement of Hydrologic Science Inc. (CUAHSI)	2014

SELECTED PUBLICATIONS

Seyednasrollah, B. and J. S. Clark (2020), "Where resource-acquisitive species are located: The role of habitat heterogeneity", Geophysical Research Letters. e2020GL087626. doi:10.1029/2020GL087626.

Seyednasrollah, B., A. M. Young, X. Li, T. Milliman, T. Ault, S. Frolking, M. Friedl, A. D. Richardson (2020) "Sensitivity of deciduous forest phenology to environmental drivers: Implications for climate change impacts across North America", *Geophysical Research Letters*, 47.

Seyednasrollah, B., A. M. Young, K. Hufkens, T. Milliman, M. A. Friedl, S. Frolking and A. D. Richardson (2019), "Tracking vegetation phenology across diverse biomes using PhenoCam imagery: The PhenoCam dataset v2.0", *Scientific Data*, Volume 6, 22

Seyednasrollah, B., A.M. Young, K. Hufkens, T. Milliman, M.A. Friedl, S. Frolking, A.D. Richardson, … [116 co-authors] 2019. PhenoCam Dataset v2.0: Vegetation Phenology from Digital Camera Imagery, 2000-2018. ORNL DAAC, Oak Ridge, Tennessee, USA..

Seyednasrollah, B., T. Milliman and A. D. Richardson (2019), "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

Seyednasrollah, B., 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 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", *Remote Sensing of Environment*, Volume 209, May 2018, Pages 446-455, ISSN 0034-4257.

OPEN-SOURCE SOFTWARE

Seyednasrollah, B., 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.

Seyednasrollah, B., 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.

Seyednasrollah, B., 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.

Seyednasrollah, B. (2017), "drawROI: An interactive toolkit to extract phenological time series data from digital repeat photography", Zenodo. http://doi.org/10.5281/zenodo.1066588.

Seyednasrollah, B. (2017), "hazer: Quantifying haze factor for RGB images to identify cloudy and foggy weather", Zenodo. http://doi.org/10.5281/zenodo.1008568.

Seyednasrollah, B. (2016), "solrad: To calculate solar radiation and related variables based on location, time and topographical conditions", Zenodo. http://doi.org/10.5281/zenodo.1249673.

REFREE

Scientific Referee for the following journals:
Nature Climate Change (x4), Scientific Data, Science of the Total Environment (x2), Geophysical Research Letters, Frontiers in Ecology and the Environment, Journal of Geophysical Research: Atmospheres, Journal of Geophysical Research: Biogeosciences, EGU Biogeosciences (x3), Agricultural and Forest Meteorology (x7), Remote Sensing of Environment (x3), Methods in Ecology and Evolution, ISPRS Journal of Photogrammetry and Remote Sensing (x2), ISPRS International Journal of Geo-Information, International Journal of Digital Earth, Climate Research, Ecosphere, Solid Earth, Remote Sensing (x5), Water (x9), Forests (x2), Atmosphere (x3), Sustainability (x5), Forecasting (x2), Data (x2), Geosciences, Entropy, Applied Sciences, Asia-Pacific Journal of Chemical Engineering