Arif Masrur

- 🖂 axm733@psu.edu 🔰 @Arif_Masrur
- http://sites.psu.edu/arif/
- https://www.linkedin.com/in/arif-masrur-psu/



Education

2016 – Present	Ph.D. Candidate in Geography/GIScience, The Pennsylvania State University, USA Thesis title: Interactive Data Mining and Machine Learning for Interesting Know- ledge Discovery.
2014 - 2016	 Masters in Geography (GIS and Cartography), University of Northern Iowa, USA Thesis title: Spatio-temporal, Exploratory and Predictive Analysis of Circumpolar Arctic Wildfire-Environmental Dynamics (2001-2015).
2012 - 2014	M.Sc. Physical Geography and Environment, University of Dhaka, Bangladesh
2008 - 2012	B.Sc. Geography and Environment, University of Dhaka, Bangladesh

Research Publications

Journal Articles

- Masrur, A., Petrov, A. N., & DeGroote, J. (2018). Circumpolar spatio-temporal patterns and contributing climatic factors of wildfire activity in the arctic tundra from 2001–2015. *Environmental Research Letters*, *13*(1), 014019.
- 2 Wallgrün, J., Huang, J., Zhao, J., Masrur, A., Oprean, D., & Klippel, A. (2017). A framework for low-cost multi-platform vr and ar site experiences. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, *42*, 263.
- Mahmud, M. S., Masrur, A., Ishtiaque, A., Haider, F., & Habiba, U. (2011). Remote sensing & gis based spatio-temporal change analysis of wetland in dhaka city, bangladesh. *Journal of Water Resource and Protection*, *3*(11), 781.

Conference Proceedings

- 1 Klippel, A., Zhao, J., Masrur, A., Wallgruen, J. O., & La Femina, P. C. (2017). Along the virtuality continuum-two showcases on how xr technologies transform geoscience research and education. In *AGU Fall Meeting Abstracts*.
- 2 Masrur, A., Zhao, J., Wallgrün, J. O., LaFemina, P., & Klippel, A. (2017). Immersive applications for informal and interactive learning for earth sciences. In Workshop on Immersive Analytics. Exploring Future Interaction and Visualization Technologies for Data Analytics. In conjunction with IEEE VIS. Phoenix, Arizona, USA.

Skills

- Programming Languages Statistics/Machine Learning VR/AR Software Development
- ▶ Python, R, C#, and JavaScript
- R, SPSS, Weka, and Scikit-Learn
- Unity 3D and Vuforia

Skills (continued)

eb Development	AL, CSS, JS libraries (D3, Leaflet, OpenLayers, JQuery), PHP
Databases	QL, PostgreSQL, PostGIS, and ESRI Geodatabase
GIS	GIS Desktop, ArcGIS Pro, ArcGIS Online, QGIS, GeoDa, Ent, and OpenWind
Remote Sensing	AS, ENVI, eCognition, Landsat, MODIS, aisaEAGLE, and AR
Design	be Photoshop
Remote Sensing Design	AS, ENVI, eCognition, Landsat, MODIS, aisaEAGLE, a AR be Photoshop

Research Experience

Summer 2018 Immersive Digital Storytelling for General Education Across the Academic Spectrum

Adobe Digital Fluency Grant, PI: Alexander Klippel, Penn State Responsibilities: Review and course content creation on state-of-the-art 360° Photography, Videography, and Virtual Tours Platforms (e.g. Google Tour Creator, Roundme, Ocurus), SfM methods, Online 3D Portfolio development using SketchFab, Adobe Photoshop, Youtube 360°, Facebook 360°, and WebVR development.

Fall 2017 NebVR Application Development for Efficient Communication of Scientific Research

Joint Fire Science Program, PI: Eric Knapp, US Forest Service Responsibilities: WebVR Application development for immersive understanding of fire and decision making for fire management, using HTML, CSS, JavaScript libraries and APIs (Leaflet, jQuery, A-Frame, WebVR). Find developed prototype: https://ishiwildfire.geog.psu.edu/index.html

Summer 2017 Immersive (VR and AR) Application Development for Informal and Interactive Learning <u>Responsibilities:</u> 3D modeling using Agisoft PhotoScan Pro; VR and AR prototype development using Unity 3D and Vuforia platforms. Find developed prototype: https://sites.psu.edu/obelisk/

Summer 2016 Space-time and Machine Learning Modeling-based Analysis of Climate-Wildfire Dynamics of Circumpolar Tundra Wildfires

 Partially Funded by NSF (Grant No: 1338850), PI: Andrey Petrov, ARCTICenter,
 University of Northern Iowa
 Responsibilities: Data wrangling using Python (GDAL, ArcPy), analyses of
 NASA MODIS fire and NASA MERRA climate data using machine leaning
 algorithms in RStudio.

 Summer 2015 Solar Potential Mapping Application for Iowa

Summer 2015 Solar Potential Mapping Application for Iowa Funded by Iowa Economic Development Authority Energy Office, PI: John DeGroote, GeoTREE Center, University of Northern Iowa <u>Responsibilities</u>: Spatial Database Development, LiDAR data processing, digital surface modeling (DSM), python for automating area under solar radiation measurement.

Professional Experience

Fall 2013	Employer: German Research Foundation (DFG) Project: Priority Program "Megacities-Megachallenge. Informal Dynamics of Global Change", Scientific Coordinator: Harald Sterly, University of Cologne, Germany. Position: Field Research Assistant and Data Analyst
	Employer: Bangladesh National Institute of Cholera & Enteric Diseases <i>Project: Beautiful Bangladesh Eco-Health Initiative.</i> Position: Field Research Assistant and GIS Technician
Fall 2012	Employer: icddr'b and Concept & Ideas Privet Ltd. <i>Project: Impact Evaluation of Cholera Vaccine and Behavior Change Interventions in Dhaka, Bangladesh.</i> Position: GIS Technician

Teaching Experience

Spring 2019	Mapping Our Changing World Instructor, Penn State
Fall 2018	Maps and the Geospatial Revolution Teaching Assistant and Lab Instructor, Penn State
	Dynamic Cartographic Representation Teaching Assistant and Lab Instructor, Penn State
Spring 2018	Mapping Our Changing World Teaching Assistant and Lab Instructor, Penn State
Spring 2017	Introduction to Physical Geography Teaching Assistant, Penn State
Fall 2016	Mapping our Changing World Teaching Assistant and Lab Instructor, Penn State
2014 – 2016	Physical Geography Teaching and lab Assistant, University of Northern Iowa

Technical Workshops

Feb 5, 2017	Geospatial Data Science Workshop: "Data Wrangling with R" Presenter
June 14, 2016	Iowa County Information Technology (ICIT 2016) Workshop, "Python for Automating ArcGIS Work-flows" Co-organizer

Conference Presentations

2018 AAG 2018 Annual Meeting, New Orleans, LA Paper: Active Learning-based Geoviusal Analytics System for Discovering Interesting Knowledge from Space-Time Big Data.

Conference Presentations (continued)

2017	AAG 2017 Annual Meeting, Boston, MA Paper: Developing a Geovisual Analytics System for Evaluating the Significance of Patterns Discovered in Event-based Data.
2016	AAG 2016 Meeting of West Lake Division, Eau Claire, WI <u>Paper:</u> Analysis of Spatiotemporal Dynamics of Arctic Tundra Wildfire Using NASA MODIS and MERRA Data (2001-2015).
	AAG 2016 Annual Meeting, San Francisco, CA Paper: Analysis of Spatiotemporal Dynamics of Arctic Tundra Wildfire Using NASA MODIS and MERRA Data (2001-2015).
	Arctic Observing and Science Summit Week (AOS and ASSW), Fairbanks, AK <u>Poster:</u> Analysis of Spatiotemporal Dynamics of Arctic Tundra Wildfire Using NASA MODIS and MERRA Data (2001-2015).
2015	AAG Annual Meeting, Chicago, IL <u>Poster:</u> Analysis of Spatiotemporal Dynamics of Arctic Tundra Wildfire Using NASA MODIS Data (2001-2014).
	Annual Graduate Student Symposium, University of Northern Iowa, IA <u>Poster:</u> Analysis of Spatiotemporal Dynamics of Arctic Tundra Wildfire Using NASA MODIS Data (2001-2014).

Scholarships and Awards

2015 📕 AAG WLDAAG Student Research Award Winner (Eau Claire, 2015)

1998 – 2004

■ Primary and Higher Secondary School Merit Scholarships by the Ministry of Education, Bangladesh

Community Service

Summer 2018 – Summer 2019
 Fall 2018 – Spring 2019
 President, Bangladesh Student Association, Penn State
 Coordinator, Undergraduate Research Opportunities Connection, Penn State
 Summer 2017 – Summer 2018
 Sports Secretary, Bangladesh Student Association, Penn

Sports Secretary, Bangladesh Student Association, Penn State