

M. Alfi Hasan, Ph.D.

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SUMMARY

Experienced mathematical modeler and data analyst for eight years in multiple disciplines (climatology, human-health, hydrology, and agriculture). Working as a contractor in Bayer/Monsanto. Demonstrated the ability to deliver valuable insights on big-data from satellite and climatological models. Proven efficiency in super-computing and cloud-based services with different UNIX based operating system. Advanced expertise in recent data-driven methods using R, MATLAB, Python, and FORTRAN (developed two packages in R). Passionate programmer with professional working knowledge of five programming languages. Currently interested to develop career in data science and machine learning.

COMPUTER SKILLS

Main Strengths:

- **Drone Image Processing :** Worked on drone image processing using Open Drone Map(ODM) and python. Worked on the predictive modeling for crop maturity using ML model
- **ArcGIS/ QGIS :** Extensively used in spatial mapping, spatial data processing, and other geo-spatial analysis. Used QGIS for image processing. Utilized ArcGIS python for the automation of forecasting the weather patterns.
- **Amazon web server(AWS) :** Worked extensively in AWS instance and buckets for image processing
- **Google Earth Engine(GEE) API :** In conjunction with python, used in the extraction of climate data from satellite images; also used in the extraction of yield information from spatial data. Running a tutorial blog for GEE in my website.
- **Machine learning algorithms :** Used algorithms like random forest, support vector machine (svm), convolution-net, alex-net, ResNet, etc to find relationships between diseases and climate. Also implemented in detection of the yield estimation.
- **Python :** Used in cross-platform satellite image processing and in an implementation of deep learning framework in crop yield detection. Also used in time-series analysis, pattern reorganization, and data visualization.
- **R :** Extensively used in various applications like, Rswirl, R-markdown, R-server, etc. Utilized in machine learning framework, data visualization, GIS analysis, stochastic modeling, biostatistics, and regression methods. Currently developing two R packages.
- **Hadoop ecosystem, MongoDB, and SQL :** Have working knowledge on these big-data systems. Familiar with the query languages that handles both structured and non-structured database. Developed a climate database with SQL.
- **Epidemic modeling :** Conducted research on epidemic models like susceptible-exposed-infected-resistant(SIER) model, SIR model. Proposed a forecast epi-model for rotavirus and have peer-reviewed article in the reputed journal.
- **Spark Mlib :** Utilized in clustering analysis of weather data to detect change of climate zones in monsoon region.
- **Pytorch :** Implemented to structure deep learning framework. Successfully passed the graduate level deep learning course at University of Rhode Island.
- **KNIME :** Implemented for machine learning analysis on weather and health data. Obtained certificate from Coursera.
- **ILWIS and ERDAS-Imagine :** Participated in a training workshop and conducted intra-annual analysis for river erosion, disaster management and vulnerability assessment in various projects.

- **Downscaling tools** : Statistical downscaling software like SDSM and dynamic downscaling software like RCM (Regional Climate Model) PRECIS. Have published literatures.
- **Weather Research and Forecasting (WRF)** : Simulated to improve rainfall forecast (during my M.Sc.). Obtained official training from NCAR/NOAA.
- **WRF-Hydro** : Simulated for river basin. Have official training from NCAR/NOAA.
- **Soil and Water Assessment Tool (SWAT)** : Proposed a new calibration technique for the software. Have publication on the related topic.
- **GRADS & CDO** : Used to process the NetCDF files in an accelerated speed for hydro-climatic data analysis.
- **Excel Macro Programming** : Developed an access database from the raw meteorological data..
- **C-sharp programming** : Bachelor thesis conducted using the languages. Developed a surface detection algorithm. Taught C programming as a lecturer.
- **HEC-RAS** : Formulated a 1D hydrological model over the southern parts of Bangladesh to model river flow.
- **Delft-3D** : Developed 2D flow models for environmental impact assessment of two power plants.

Have adequate knowledge on:

- **Environmental software:** WaterCAD, StormCAD , Flowamster
- **Operating System:** Microsoft Windows and Unix Based OS Ubuntu, OpenSUSE, Fedora
- **Programming Languages:** C++, C-sharp, Visual Studio.NET (Frame Work 3.0), PHP, XML, Java-script
- **Graphics Designing Software:** Adobe Photoshop, Adobe Illustrator, Adobe Premier
- **Other Software:** L^AT_EX, Octave

EXPERIENCE

Remote Sensing Data Scientist (Summer intern)

June 2018 -August 2018

Colaberry Inc. at Monsanto, St. Louis, MO, USA

- **Predictive Modeling in Python:** Work to implement Cotton maturity project
- **Update work flow Pipeline:** Updated work flow from raw drone images to plot matrix using python, AWS and ODM
- **Open Drone Map:** Extensively worked on Open Drone Map (ODM)

Graduate Research and Teaching Assistant

Jan 2015 - May 2018

University of Rhode Island, Kingston, RI 02881, USA

- **Machine Learning in Python:** Implemented machine learning on disease epidemiological research using Python. Also utilized various machine learning techniques (i.e. svm, random forest) in R for rainfall bias correction.
- **Project on Epidemiology:** Actively working in the project “Control of Endemic Cholera in Bangladesh”, funded by the Bill & Melinda Gates Foundation.
- **Summer Projects with The International Maize and Wheat Improvement Center(CIMMYT):**
 - Year 2015: Developed an atmospheric correction tool using FORTRAN, Python and R (see. publication no.)
 - Year 2016: Developed an integration tool (“PANI”) for irrigation scheduling.
 - Year 2017: Developed an R packages for Agro-stress analysis.
- **Research Fellow in RI-Water Resources Center:** Involved in administrative tusk, such as managing center’s website, arranging conferences and helping the director to review proposals.
- **Teaching Assistant:**
 - CVE 374: Environmental Engineering (Fall 2015)
 - CVE 375: Environmental Engineering Lab (Fall 2015)
 - CVE 375: Environmental Engineering Lab (Spring 2016)
 - CVE 471: Waste Water Management (Spring 2018)

Research Associate

Jul 2011 - Dec 2014

Institute of Water and Flood Management (IWFM), Dhaka-1000, Bangladesh

- **Numerical modeling and statistical analysis.:** Achieved advance expertise in statistical method and numerical models for hydrology through various projects.
- **Supercomputing:** Simulated year long climate ensemble simulation in super computer of UK, Met Office and Bangladesh(a 32-node server).
- **International Research Projects:**
 - * High End Climate Impact and Extremes (HELIX), collaborative research project by Institute of Water and Flood Management (IWFM), Exeter University and Met office, UK, funded by EU (under FP7 call)
 - * Production and Service of Agro-meteorological Information for the Adaptation to Climate Change in Bangladesh, conducted by Institute of Water and Flood Management (IWFM) and Bangladesh Agricultural Research Council (BARC))
 - * High-resolution Regional Climate Change Information for Bangladesh to inform Impacts assessments, Vulnerability indicators and Adaptation policies, conducted by Institute of Water and Flood Management (IWFM) and Met Office UK; funded by Department of International Development (DFID)
 - * Review of Climatic Disaster Warning System for Bangladesh, conducted by Institute of Water and Flood Management (IWFM); funded by Government of Bangladesh
 - * Environmental Impact assessment of Dhaka and Mongla power plant; funded by Orion Group

Visiting Scientist

Jul 2012 - Sep 2012

Met Office, Hadley Center, FitzRoy Road, Exeter, Ex1 3PB, United Kingdom

- **Ensemble Simulation:** Simulated 150 years of ensembles scenarios with PRECIS climate models.
- **Climate Downscaling:** Conducted downscaling through the project called “High-resolution Regional Climate Change Information for Bangladesh to inform Impacts assessments, Vulnerability indicators and Adaptation policies”, collaborated by Institute of Water and Flood Management (IWFM) and Met Office UK; funded by Department of International Development (DFID)

Lecturer

Jun 2011 - Apr 2012

World University of Bangladesh, 3A, Road No 4, Dhaka 1205, Bangladesh

- **Computer programming:** Taught the courses on C programming for Civil engineering.
- **Coordinator:** Promoted as a coordinator in the Department of Civil Engineering.

Design Engineer

Feb 2011 - June 2011

Five Star Consultant and Construction, 20/B, Road No 4, Dhaka-1205, Bangladesh

- **Structural modeling:** Completed total structural design of several residential buildings in Bangladesh

Co-founder of ByNA

Jan 2008 - Dec 2010

A college based t-shirt Brand of Bangladesh

- **Co-founder and Designer :** Operated a college base business of T-shirt and also designed related artwork

EDUCATION

Ph.D. in Civil and Environmental Engineering

Jan 2015 – August 2018

University of Rhode Island, Kingston, RI 02881, USA

- *Deep Learning - Data management :* Successfully completed graduate and online courses related to Hadoop ecosystem, MongoDB, Deep learning and machine learning with practical class projects
- *Bio-Statistics :* Successfully completed advance statistical courses, such as time-series analysis, environmental statistical analysis
- *Geographic information system :* Successfully completed advance courses related to Geo-spatial modeling and remote sensing

Master of Science in Water Resources Development

2014

Bangladesh University of Engineering and Technology (BUET), Dhaka-1000, Bangladesh

- *Climate Downscaling :* Successfully completed courses related to climate modeling
- *Hydrological modeling :* Successfully completed advance hydrological modeling and optimization courses

Bachelor of Science in Water Resources Engineering

2011

Bangladesh University of Engineering and Technology (BUET), Dhaka-1000, Bangladesh

- *Programming :* Archived highest grade in all programming related courses

Journal Articles

9. **Hasan, M.A.**, & Islam, A.K.M.S. (2017), Evaluation of Microphysics and Cumulus Schemes of WRF for Forecasting of Heavy Monsoon Rainfall over the Southeastern Hilly Region of Bangladesh, Pure and Applied Geophysics, <https://doi.org/10.1007/s00024-018-1876-z>.
8. **Hasan, M.A.**, Mouw, C., Jutla, A., & Akanda, A. S. (2017), Quantification of rotavirus diarrheal risk due to hydroclimatic extremes over South Asia: Prospects of satellitebased observations in detecting outbreaks. *GeoHealth*.
7. **Hasan, M.A.**, Islam, A.S. and Akanda, A.S. (2017), Climate projections and extremes in dynamically downscaled CMIP5 model outputs over the Bengal delta: a quartile based bias-correction approach with new gridded data, *Climate Dynamics* (2017): 1-22.
6. **Hasan, M.A.**, and Pradhanang, Soni M. (2017), "Estimation of flow regime for a spatially varied Himalayan watershed using improved multi-site calibration of the Soil and Water Assessment Tool (SWAT) model." *Environmental Earth Sciences* 76.23: 787.
5. Stratoulas, D., Tolpekin, V., de By, R.A., Zurita-Milla, R., Retsios, V., Bijker, W., **Hasan, M.A.** and Vermote, E., (2017), A Workflow for Automated Satellite Image Processing: from Raw VHSR Data to Object-Based Spectral Information for Smallholder Agriculture., *Remote sensing*, 9(10), p.1048.
4. Nowreen, S., Murshed, S.B., Islam, A.S., **Hasan, M.A.** and Sarker, T.K. (2013), An Indicator of Climate Change in the South West Region of Bangladesh, *The International Journal of Climate Change: Impacts and Responses*, Volume 4, Issue 3, pp.47-60, <http://ijc.cgpublisher.com/product/pub.185/prod.199>.
3. Islam, A.S., Paul, S., Mohammed, K., Billah, M., Fahad, M.G.R., **Hasan, M.A.**, Islam, G.T. and Bala, S.K., (2017), Hydrological response to climate change of the Brahmaputra basin using CMIP5 general circulation model ensemble., *Journal of Water and Climate Change*, p.jwc2017076.
2. Nowreen, S., Murshed, S.B., Islam, A.S., Bhaskaran, B. and **Hasan, M.A.** (2014), Changes of Rainfall Extremes around the Haor Basin Areas of Bangladesh using Multi-member Ensemble RCM, *Theoretical and Applied Climatology*, doi: 10.1007/s00704-014-1101-7.
1. Fahad, M.G.M., Islam, A. K. M.S., Nazari, R., **Hasan, M.A.**, Tarekul Islam, G. M., and Bala, S. K. (2017). Regional changes of precipitation and temperature over Bangladesh using biascorrected multimodel ensemble projections considering highemission pathways. *International Journal of Climatology*, DOI: 10.1002/joc.5284.

Presented Talks

2. **Hasan, M.A.**, Akanda, A.S., Jutla, A., Huq, A. and Colwell, R. (2017), Understanding hydro-climatic drivers of infectious diarrheal diseases in South Asia and their projected risks from regional climate models". Tuesday, 12 December 2017, 17:30 - 17:45 at 2017 American Geophysical Union (AGU) Fall Meeting. New Orleans, LA, December 11-15 (Selected in AGU-On Demand Session, has youtube video).
1. **Hasan, M.A.**, and Akanda A. (2017), "Assessing diarrhoeal diseases risks of climate change in the 21st century over South Asia.". Sunday, 12 November 2017, 11:25 - 12:50 at the 2017 Graduate Climate Conference, Woods Hole, MA, USA.

Conference Proceedings

20. Islam, A.S., and **Hasan, M.A.** (2012), Climate induced changes of precipitation extremes over Bangladesh Proceeding of 3rd International Conference on Environmental Aspect of Bangladesh. Japan, ID 110, pp-67-70.
19. **Hasan, M.A.**, and Islam, A.S. (2011), Changes of Seasonal Temperature Extremes in Future over Bangladesh using Projections by a Regional Climate Model, Proceeding of National Seminar on Climate Change Impact and Adaptation, Center for Climate Change and Sustainability Research (3CSR), Department of Civil Engineering, DUET, Gazipur, Bangladesh.

18. **Hasan, M.A.**, Islam, A.S. and Bhaskaran, B. (2013), Predicting future precipitation and temperature over Bangladesh using high resolution regional scenarios generated by multi-member ensemble climate simulations, 4th International Conference on Water & Flood Management (ICWFM), Institute of Water and Flood Management(IWFM), BUET, Bangladesh, pp-575-582.
17. **Hasan, M.A.**, Islam, A.S. and Bhaskaran, B. (2013), Predicting change of future climatic extremes over Bangladesh in high resolution climate change scenarios, 4th International Conference on Water & Flood Management (ICWFM), Institute of Water and Flood Management(IWFM), BUET, Bangladesh, pp-583-590.
16. **Hasan, M.A.**, Islam, A.S. and Bhaskaran, B. (2013), Validation of Seasonal Temperature, Precipitation and Mean Sea Level Pressure of the Multi-member Ensemble Scenarios over Bangladesh using PRECIS model, 4th International Conference on Water & Flood Management (ICWFM), Institute of Water and Flood Management(IWFM), BUET, Bangladesh, pp-565-574.
15. **Hasan, M.A.**, Islam, A.S., and Bokhtiar, S.M. (2013), Future changes of meteorological drought over Bangladesh using high resolution climate scenarios, International Conference on Climate Change Impact and Adaptation (I3CIA-2013), Center for Climate Change and Sustainability Research (3CSR), Department of Civil Engineering, DUET, Gazipur, Bangladesh, pp. 435-443.
14. **Hasan, M.A.**, Islam, A.S., and Bokhtiar, S.M. (2014), Impact of climate change on potential evapotranspiration (PET) in recent decades over Bangladesh, 2nd International Conference on Advances in Civil Engineering (ICACE 2014), Department of Civil Engineering, DUET, Gazipur, Bangladesh.
13. Murshed, S.B., Nowreen, S., Islam, A.S., **Hasan, M.A.** and Sarker, T.K. (2013), Change of extreme precipitation indices for the eight hydrological regions of Bangladesh, International Conference on Climate Change Impact and Adaptation (I3CIA-2013), Center for Climate Change and Sustainability Research (3CSR), Department of Civil Engineering, DUET, Gazipur, Bangladesh, pp. 461-471.
12. Hossain, M.A., Islam, A.S., **Hasan, M.A.**, and Bhaskaran, B. (2013), Changes of the seasonal salinity distribution at the sundarbans coast due to impact of climate change, 4th International Conference on Water & Flood Management (ICWFM), Institute of Water and Flood Management(IWFM), BUET, Bangladesh, pp-637-648.
11. Paul, S., **Hasan, M.A.**, and Shopan, A.A. (2014), An assessment of best-fit probability distribution model for daily rainfall considering projected climate change in Bangladesh using statistical down-scaling method, International Conference on Civil Engineering for Sustainable Development (ICCESD-2014), Department of Civil Engineering, Khulna, Bangladesh. , pp-127-128.
10. **Hasan, M.A.**, Paul, S., Islam, A.S., Islam, G.M.T., Bala, S.K., Billah, M. and Pavel, M.A.A. (2014), Projected changes of rainfall over Bangladesh by a high resolution regional climate model under the RCP scenarios, Proceedings of the 2nd International Conference on Advances in Civil Engineering 2014 (ICACE-2014), 26-28 December, 2014, CUET, Chittagong, Bangladesh.
9. **Hasan, M.A.** and Islam, A.S. (2015), Impact of climate change on potential evapotranspiration (PET) in recent decades over Bangladesh, Proceedings of the 2nd International Conference on Advances in Civil Engineering 2014 (ICACE-2014), 26-28 December, 2014, CUET, Chittagong, Bangladesh.
8. Paul, S., Islam, A.S., **Hasan, M.A.**, Islam, G.M.T. and Bala, S.K.(2014) Hydrological modeling for the semi ungauged Brahmaputra river basin using SWAT model, Proceedings of the 2nd International Conference on Advances in Civil Engineering 2014 (ICACE-2014), 26 28 December, 2014, CUET, Chittagong, Bangladesh.
7. Rahman, M.M., Billah, M., Islam, A.S., Paul, S., **Hasan, M.A.**, Islam, G.M.T., Bala, S.K., and Pavel, M.A.A.(2014), Application of 1D model towards establishing flow patterns for the southwest coastal regions of Bangladesh, Proceedings of the 2nd International Conference on Advances in Civil Engineering 2014 (ICACE-2014), 26 28 December, 2014, CUET, Chittagong, Bangladesh.
6. Pavel, M.A.A., Bala, S.K., Islam, A.S., Islam, G.M.T., **Hasan, M.A.**, Paul, S. and Billah, M. (2014), Examining the adequacy of national adaptation policies under higher end climate scenarios, Proceedings of the 2nd International Conference on Advances in Civil Engineering 2014 (ICACE-2014), 26 28 December, 2014, CUET, Chittagong, Bangladesh.

5. **Hasan, M.A.**, Islam, A.S., Islam, G.M.T., Bala, S.K., Paul, S., Billah, M., Rahman, M.M. (2015), A comparative analysis of CMIP3 and CMIP5 climate projections over Bangladesh, Proceedings of the 5th International Conference on Water and Flood Management (ICWFM 2015), 6-8 March, 2015, IWFM, BUET, Dhaka, Bangladesh.
4. Paul, S., **Hasan, M.A.** and Islam, A.S. (2015), Assessment of change in future water resources of Brahmaputra Basin applying SWAT model using multi-member ensemble climate data, Proceedings of the 5th International Conference on Water and Flood Management (ICWFM 2015), 6-8 March, 2015, IWFM, BUET, Dhaka, Bangladesh.
3. Billah, M., Rahman, M.M., Paul, S., **Hasan, M.A.** and Islam, A.S. (2015), Impact of climate change on river flows in the southwest region of Bangladesh, Proceedings of the 5th International Conference on Water and Flood Management (ICWFM 2015), 6-8 March, 2015, IWFM, BUET, Dhaka, Bangladesh.
2. Bala, S.K., Pavel, M.A.A., Islam, A.S., Islam, G.M.T., **Hasan, M.A.**, Paul, S., Dhar, L.C.S., Rhaman, M.M and Billah M.(2015), A review Of good adaptation practices on climate change in Bangladesh, Proceedings of the 5th International Conference on Water and Flood Management (ICWFM 2015), 6-8 March, 2015, IWFM, BUET, Dhaka, Bangladesh.
1. Khan, S.K., Rahman, M.M., Billah, M., Islam, A.S., Islam, G.M.T., Bala, S.K., **Hasan, M.A.** and Paul, S. (2014), Changes of sediment discharge on Passure-Shibsa river using CIMP5 climate model, Proceedings of the International Conference on Climate Change in relation to Water and Environment (I3CWE-2015), 12 14 February, 2015, DUET, Gazipur, Bangladesh.

Presented Posters

9. Akanda, A.S., **Hasan, M.A.**, Jutla, A., Aziz, S., Alam, M., Ahsan, G., Huq, A. and Colwell, R. (2017) " Empowering Local Organizations and Decision-makers in a Changing Climate: EO-guided Environmental Surveillance of Cholera and Rotavirus for South Asia". Poster GC13H-0852 presented at 2017 American Geophysical Union (AGU) Fall Meeting. New Orleans, LA, December 11-15.
8. Akanda, A.S., Nusrat , F., and **Hasan, M.A.** (2017) " Empowering Local Organizations and Decision-makers in a Changing Climate: EO-guided Environmental Surveillance of Cholera and Rotavirus for South Asia". Poster PA22A-01 presented at 2017 American Geophysical Union (AGU) Fall Meeting. New Orleans, LA, December 11-15.
7. **Hasan, M.A.**, Akanda, A.S., Jutla, A. and Colwell, R. (2016) "Geo(spatial) Health Investigation of Rotavirus in an Endemic Region: Hydroclimatic Influences and Epidemiology of Rotavirus in Bangladesh". Poster PA21B-2210 presented at 2016 American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 12-16.
6. Akanda, A.S., Palash, W., **Hasan, M.A.**, and Nusrat , F. (2017) " Understanding the Unusual 2017 Monsoon and Floods in South Asia". Poster NH51D-01 presented at 2017 American Geophysical Union (AGU) Fall Meeting. New Orleans, LA, December 11-15.
5. **Hasan, M.A.**, Pradhanang, S., and Akanda, A.S. (2016) " Large scale hydrologic modeling of ecologically important flow metrics of rivers of the Himalayas.". Poster GC23G-1306 presented at 2016 American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 12-16.
4. **Hasan, M.A.**, Islam, A.K.M.S., Akanda, A.S. (2015) "Understanding Hydroclimatic Extremes in Changing Monsoon Climates with Daily Bias Correction of CMIP5 Regional Climate Models over South Asia". Poster H-53A:1636 presented at 2015 American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 15-19.
3. Pradhanang, S., and **Hasan, M.A.**(2016) " Estimation of future flow regime for a spatially varied Himalayan watershed using improved multi-site calibration method of SWAT model.". Poster H43A-1404 presented at 2016 American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 12-16.
2. Akanda, A.S., **Hasan, M.A.**, Jutla A., et al (2014) "Co-evolving Hydroclimatic Signatures and Diarrheal Disease Dynamics in Bangladesh: Implications for Water Management and Public Health". Poster presented at 2014 American Geophysical Union (AGU) Fall Meeting. San Francisco, CA (p 944).

1. Stratoulis, D., de By, R.A., Tolpekin, V., Zurita-Milla, R. Bijker, W., **Hasan, M.A.**, Vermote, E. (2016), A Workow for Automated Satellite Image Processing: from Raw Data to Object-based Spectral Information., 6th EARSeL SIG LU/LC & 2nd EARSeL LULC/NASA LCLUC Workshop” in May 6-7th, Prague.

Research Reports

1. Islam. A.K.M, and **Hasan, M.A.** (2013), Production and Service of Agro-meteorological Information for the Adaptation to Climate Change in Bangladesh, conducted by Institute of Water and Flood Management (IWFM), BUET and Bangladesh Agricultural Research Council (BARC).
2. Islam. A. K. M., Hussain, M.A., Murshed S.B., Nowreen, S., and **Hasan, M.A.** (2013). High-resolution Regional Climate Change Information for Bangladesh to inform Impacts assessments, Vulnerability indicators and Adaptation policies, conducted by Institute of Water and Flood Management (IWFM) and Met Office UK; funded by Department of International Development (DFID)
3. Islam. A. K. M., Murshed S.B., Nowreen, S., and **Hasan, M.A.** , Impact of Climate Change on Rainfall Intensity in Bangladesh (2013) conducted by Institute of Water and Flood Management (IWFM), BUET.
4. Islam. A. K. M., and **Hasan, M.A.** , Analyzing Climate Variability Scenarios and Downscaling Climate Data Based on Available Model Results (2013), conducted by Center for Center for Environmental and Geographic Information Services (CEGIS) and Institute of Water and Flood Management (IWFM), BUET, Bangladesh.
5. Murshed, S.B., Islam, A.K.M., Khan, S.A., and **Hasan, M.A.** (2013), Review of Warning System for Climatic Disasters, conducted by Institute of Water and Flood Management (IWFM), BUET; funded by Government of Bangladesh (GoB).

Dissertations & Thesis

1. **Ph.D.:** *Understanding the connection between the hydro-climatic extremes and diarrheal diseases over Bengal Delta: the vulnerability assessment of past, present and future.* at University of Rhode Island, USA.
2. **M.Sc.:** *Improvement of heavy rainfall forecast using weather research and forecasting (WRF) model* at Institute of Water and Flood Management (IWFM), Bangladesh University of Engineering and Technology (BUET).
3. **B.Sc.:** *Development of a software to predict groundwater table using GIS* at Department of Water Resources Engineering (DoWRE), Bangladesh University of Engineering and Technology (BUET).

AWARDS, TRAINING WORKSHOPS, AND INTERNSHIPS

- **Graduate Fellowship:** Nominated as research fellow of Rhode Island Water Resources Center (RI-WRC) for Fall 2017 & Fall 2018.
- **Travel Grants from CUAHSI:** Awarded Travel Grants from CUAHSI for attending WRF-Hydro workshop.
- **University scholarship:** Obtained scholarship from the Government of Bangladesh during undergraduate years.
- **WRF-Hydro Workshop by NOAA:** Completed the training workshop organized by National Center for Atmospheric Research (NCAR) on Workshop on WRF-Hydro, October, 2017.
- **WRF Workshop by NOAA:** Completed the training workshop organized by National Center for Atmospheric Research (NCAR) on Workshop on Weather Research and Forecasting (WRF), June, 2017.
- **Summer Intern with CIMMYT:** Conducted summer projects (June- July-August) with International Maize and Wheat Improvement Center (CIMMYT) in 2015, 2016 and 2017
- **Intern at IWM:** Conducted Internship at Institute of Water Modelling (IWM), House no. 496, Road no. 32, New DOHS, Mohakhali Dhaka, April 2010 to May 2010.
- **Workshop by AIT on Flood Risk Management:** Participated in the training workshop on 'Application of Remote Sensing and GIS for Flood Risk Management', organized by Asian Institute of Technology (AIT) and Bangladesh Water Development Board, 25th to 28th November, 2013.
- **Workshop by World Bank on Climate:** Participated in the training workshop on Climate downscaling using statistical methods, organized by World Bank, 14th to 15th May, 2014.
- **Coursera Courses on Big Data:** Successfully completed six courses of **Big Data** specialization offered by University of California, San-Diogo.
- **Udacity Courses:** Successfully completed on-line courses on **Introduction to Machine Learning** and **Deep Learning** offered by Udacity.

- **Workshop on Climate Downscaling:** Participated in the training workshop on Climate Modeling and Downscaling Techniques, organized by Institute of Water and Flood Management(IWFM); funded by Danish International Development Agency,18th to 22nd February, 2012.
- **Workshop on Urban Modeling:** Participated in the training workshop on Urban Drainage Modeling for Coastal Towns of Bangladesh Considering Climate Change, organized by Institute of Water and Flood Management (IWFM), BUET, Dhaka,19th to 21st April, 2013.
- **Workshop on Climate Impacts:** Participated in Stakeholders Workshop on Climate Change Impacts, Vulnerability and Adaption: Sustaining Rice Production in Bangladesh organized by CEGIS, BRAC Centre Inn, 75-Mohakhali, 23rd January, 2013.
- **Workshop on Regional Climate Modeling:** Participated in Stakeholder Workshop on High-resolution Regional Climate Change Information for Bangladesh to inform Impacts assessments, Vulnerability indicators and Adaptation policies, IWFM, BUET, Dhaka,2nd November, 2011.
- **Coursera Courses on Statistics:** Successfully completed course named *Statistics: make sense of Data* offered by University of Toronto.
- **MatLab.org Courses on Bayesian Statistics:** Successfully completed *Introduction to Applied Bayesian Statistics for Climate Research* offered by MatLab.org.

EXTRA-CURRICULAR ACTIVITIES & LEADERSHIP

- **President of Blood Donation Organization, Badhon:** Nominated as President of Badhon-Suhrawardi Hall Unit, BUET (Badhon is a voluntary blood donating organization) for 2008 and 2009
- **Organizer of Vaccination Program :** Team Leader and Organizer of three consecutive Hepatitis B+ Vaccination program, organized by *Badhon* and *Sanofi Aventis* in 2009.
- **Rover Scout:** Member of Rover scout, BUET from 2006 to 2010.
- **Assistant Organizer of Workshop on Urban Modeling:** Participated in organizing the training workshop on Urban Drainage Modeling for Coastal Towns of Bangladesh Considering Climate Change, organized by Institute of Water and Flood Management (IWFM), BUET, Dhaka. (from 19th Apr to 21st Apr, 2013)
- **Assistant Organizer of Conference:** Participated in organizing in 4th International Conference on Water & Flood Management (ICWFM), organized by Institute of Water and Flood Management (IWFM), BUET, Dhaka.(4th Oct - 5th Oct, 2013)
- **Supporting organizer of Rhode Island Water Resources Forum :** Supported in organizing *Clean Drinking Water Symposium*, hosted by Rhode Island Water Resources Center. (4th Oct - 5th Oct, 2013)
- **Elected Class-Representative:** Elected Class-representative of Department of Water Resource Engineering, Bangladesh University of Engineering and Technology (BUET) during 2008 to 2009
- **Google Local Guide:** Level six local guide of Google. Conducting the beta testing of Google Maps before the release of new features (i.e. parking spot).

REFERENCES

Dr. Leon Thiem

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 University of Rhode Island,
 203 Bliss Hall, 1 Lippitt Road, Kingston, RI 02881
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Dr. Ali Shafqat Akanda

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 Civil and Environmental Engineering,
 University of Rhode Island,
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Dr. Urs Schulthess

Senior Scientist Remote Sensing

CIMMYT-Bangladesh,

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Email : u.schulthess@cgiar.org, **Mobile :** +88 17 8766 9073

Dr. Soni M. Pradhanang

Assistant Professor

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