

# Abu Yousuf Md Abdullah

Research Associate

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## EDUCATION

- 2018 - 2020     **Master of Science (MSc) in Public Health and Health Systems**  
School of Public Health and Health Systems,  
Faculty of Applied Health Sciences,  
University of Waterloo, Ontario, Canada
- Coursework: 90% cumulative average in 5 courses
- Thesis: Understanding the Differential Impact of Vegetation Measures on  
Modeling the Association between Vegetation and Psychotic and Non-Psychotic  
Disorders in Toronto, Canada
- Supervisor: Dr. Jane Law  
School of Planning and School of Public Health Sciences,  
University of Waterloo, Ontario, Canada
- 2011 - 2016     **Bachelor of Science (BS) in Geography and Environment**  
Department of Geography and Environment,  
Faculty of Earth and Environmental Sciences  
University of Dhaka, Dhaka, Bangladesh
- Coursework: CGPA 3.73 out of 4 (First class with Honors)
- Specialization: Geospatial techniques (Geographic Information System and  
Remote Sensing)
- 2008 - 2010     **GCE Advanced Level Examination**  
Pearson Edexcel- London Examinations  
3As in 4 subjects (Physics, Chemistry, Biology, Mathematics)
- 2007 - 2008     **GCE Ordinary Level Examination**  
Pearson Edexcel- London Examinations  
6As in 7 subjects (Physics, Chemistry, Biology, Human Biology, Mathematics,  
English, Bangla)

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## ACADEMIC AWARDS AND SCHOLARSHIPS

- 2020 **University of Waterloo Graduate Scholarship**  
Scholarship awarded for academic results and maintaining a first-class cumulative average.
- 2019 **Faculty of Applied Health Sciences Award, University of Waterloo**  
Graduate scholarship for academic excellence from the Dean of the Faculty of Applied Health Sciences and the University of Waterloo Graduate Studies and Postdoctoral Affairs.
- 2018 - 2020 **International Master's Students Award, University of Waterloo**  
Entrance award for past academic, research, and professional standings.
- 2018 and 2020 **Graduate Experience Award, University of Waterloo**  
Graduate scholarship for teaching experience as a Teaching Assistant.
- 2017 **Undergraduate Scholarship for Academic Excellence, University of Dhaka**  
Award for securing the top result in the Faculty of Earth and Environmental Sciences, University of Dhaka. The award is conferred to the top scorers in the faculty of over 1000 students.
- 2017 **AQM Mohiuddin Memorial Scholarship, University of Dhaka**  
Award for the top result in the Department of Geography and Environment, University of Dhaka. The award is conferred each year to the top two scorers of the final year of the Bachelor's examination, in a batch of about 100 students.
- 2009 and 2011 **The Daily Star Award for GCE Academic Excellence**  
Award for academic results in GCE Ordinary (2009) and Advanced (2011) level examinations. The award is conferred to the highest GCE result achievers of Bangladesh in examinations taken by the Cambridge Assessment International Education (CIE) and Pearson Edexcel London.

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## RESEARCH AND ACADEMIC INTERESTS

Spatiotemporal Planning	Spatial Epidemiology
Bayesian Spatiotemporal Modeling	Hierarchical (Multilevel) Spatial Modeling
Built-environment Effects	Extreme Climate Events

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## RESEARCH IMPACT

**Google Scholar** Citations = 276; h-index = 7; i10-index = 6  
URL: <https://scholar.google.ca/citations?user=eKcT5z8AAAAJ&hl=en>

**Researchgate** RG Score = 14.5; Citations = 263; Reads = 5300; Recommendations = 47  
URL: <https://www.researchgate.net/profile/Abu-Abdullah-10>

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## INTERNATIONAL JOURNAL PUBLICATIONS (Peer-reviewed)

- 2021      Abdullah, A.Y.M., Law, J., Butt, Z.A. and Perlman, C.M. (2021). Understanding the Differential Impact of Vegetation Measures on Modeling the Association between Vegetation and Psychotic and Non-Psychotic Disorders in Toronto, Canada. *International Journal of Environmental Research and Public Health*, 18(9), p.4713.
- 2020      Abdullah, A.Y.M., Bhuian, M.H., Kiselev, G., Dewan, A., Hasan, Q.K. and Rafiuddin, M. (2020). Extreme temperature and rainfall events in Bangladesh: a comparison between coastal and inland areas. *International Journal of Climatology*.
- Adnan, M.S.G., Abdullah, A.Y.M., Dewan, A., & Hall, J. W. (2020). The effects of changing land use and flood hazard on poverty in coastal Bangladesh. *Land Use Policy*, 99, 104868.
- 2019      Abdullah, A.Y. M., Masrur, A., Adnan, M.S.G., Baky, M., Al, A., Hassan, Q.K., & Dewan, A. (2019). Spatio-temporal patterns of land use/land cover change in the heterogeneous coastal region of Bangladesh between 1990 and 2017. *Remote Sensing*, 11(7), 790.
- Abdullah, A.Y.M., Biswas, R.K., Chowdhury, A.I., & Billah, S.M. (2019). Modeling soil salinity using direct and indirect measurement techniques: A comparative analysis. *Environmental Development*, 29, 67-80.
- Chowdhury, A.I., Abdullah, A.Y.M., Haider, R., Alam, A., Billah, S.M., Bari, S., ... & El Arifeen, S. (2019). Analyzing spatial and space-time clustering of facility-based deliveries in Bangladesh. *Tropical Medicine and Health*, 47(1), 44.
- Adnan, M.S.G., Dewan, A., Zannat, K.E., & Abdullah, A.Y.M. (2019). The use of watershed geomorphic data in flash flood susceptibility zoning: a case study of the Karnaphuli and Sangu river basins of Bangladesh. *Natural Hazards*, 99(1), 425-448.
- 2018      Chowdhury, A.I., Haider, R., Abdullah, A.Y.M., Christou, A., Ali, N.A., Rahman, A.E., ... & Kisson, N. (2018). Using geospatial techniques to develop an emergency referral transport system for suspected sepsis patients in Bangladesh. *PloS One*, 13(1), e0191054.
- 2017      Dewan, A., Abdullah, A.Y.M., Shogib, M. R. I., Karim, R., & Rahman, M. M. (2017). Exploring spatial and temporal patterns of visceral leishmaniasis in endemic areas of Bangladesh. *Tropical medicine and health*, 45(1), 1-10.
- Abdullah, A.Y.M., Dewan, A., Shogib, M.R. I., Rahman, M.M., & Hossain, M.F. (2017). Environmental factors associated with the distribution of visceral leishmaniasis in endemic areas of Bangladesh: modeling the ecological niche. *Tropical Medicine and Health*, 45(1), 13.
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## BOOK CHAPTER (peer-reviewed)

- 2016      Dewan, A., Hashizume, M., Rahman, M.M., Abdullah, A.Y.M., Corner, R.J., Shogib, M.R.I., & Hossain, M.F. (2016). Environmental change and kala-azar with particular reference to Bangladesh. In *Kala Azar in South Asia* (pp. 223-247). Springer, Cham.
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## MANUSCRIPTS UNDER REVIEW

- 2021      **Abdullah, A.Y.M., Law, J., Perlman, C.M. & Butt, Z.A. (2021).** Why urban greenery matters: investigating the age-sex specific association between vegetation cover and mental health disorder cases in Toronto, Canada. *JMIR Public Health and Surveillance*
- Law, J., & **Abdullah, A.Y.M.** (2021) An offenders-offenses shared component spatial model for identifying shared and specific hotspots of offenders and offenses: A case study of juvenile delinquents and violent crimes in the Greater Toronto Area. *Journal of Quantitative Criminology*
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## MANUSCRIPTS UNDER PROGRESS (Awaiting submission)

- 2022      A Bayesian shared component spatial modeling approach for identifying association and geographic pattern of the association: A case study of the association between young offenders and violent crimes in Greater Toronto Area  
Jane Law and **Abu Yousuf Md Abdullah**  
Target Journal: *Journal of the Royal Statistical Society: Statistical Methodology – Series B*
- When women return to their natal homes to deliver: Impact on health and healthcare-seeking outcomes in rural Bangladesh  
Atique Iqbal Chowdhury, Asraful Alam, **Abu Yousuf Md Abdullah**, Abu Bakkar Siddique, Mamunur Rashid, Kyu Han Lee, Sanwarul Bari, Qazi Sadequr Rahman, Abu Mohammed Naser, Argešanu Solveig, Shams El Arifeen, Emily S. Gurley  
Target Journal: *BMC Public Health*
- Developing a spatial grid-based technique for representative sampling in population-based surveys using machine learning and Geographic Information System  
Atique Iqbal Chowdhury, **Abu Yousuf Md Abdullah**, Kyu Han Lee, Asraful Alam, Sanwarul Bari, Emily S. Gurley, Argešanu Solveig, Shams El Arifeen  
Target Journal: *The Lancet Global Health*
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## OTHER RESEARCH ACTIVITIES

- 2021 -      **Research Collaborator**  
continued      The Global Burden of Disease (GBD) Collaborator Network  
Institute for Health Metrics and Evaluation,  
University of Washington, Washington, USA  
URL: [www.healthdata.org/gbd/about](http://www.healthdata.org/gbd/about)
- 2021      **Invited Talks/Guest Speaker**
- Topic: Spatial Planning in Health Research  
Session: Statistical learning for health researchers in Bangladesh  
Maternal and Child Health Division,  
icddr,b, Dhaka, Bangladesh
  - Topic: Spatial Epidemiology in Health Science  
Session: Guest lecture for HLTH 719 course (Advanced Research Methods in Health Informatics)  
School of Public Health Sciences, Faculty of Health  
University of Waterloo, Ontario, Canada

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## EDITOR AND REVIEWER (International peer-reviewed journals)

- 2018-2019      **Guest Editor**  
Special issue: Geoinformation and Spatial Analytics in Tropical Medicine  
URL: [www.biomedcentral.com/collections/GSATM](http://www.biomedcentral.com/collections/GSATM)
- 2019-2021      **Reviewer (14 international journals)**  
Verified review records ('Peer Review' section):  
<https://orcid.org/0000-0001-8641-990X>
- List of journals:** Nature Scientific Reports; BMJ Paediatrics Open, ISPRS International Journal of Geo-Information; PLOS One; PLOS Neglected Tropical Diseases; BMC Tropical Medicine and Health; Earth Systems and Environment; Meteorology and Atmospheric Physics; Water; Land; Remote Sensing; Applied Sciences; Sustainability; Forests

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## RESEARCH AWARDS AND SCHOLARSHIPS

- 2020      **The Stratas Foundation Award for Mental Health Research in Canada**  
Competitive grant awarded from over 300 proposals for innovating mental health research in Canada. The proposed grant aimed at integrating Bayesian spatial modeling with remote sensing and machine learning techniques to study the effect of built-environment factors and mental health disorders in Canada.  
URL: [www.stratasfoundation.com/abu-yousuf-md-abdullah](http://www.stratasfoundation.com/abu-yousuf-md-abdullah)
- 2019      **The 6<sup>th</sup> International Climate Geoengineering Summer School Scholarship**  
Co-organized by:  
Harvard Solar Geoengineering Research Program, The Emmett Institute on Climate Change and the Environment (UCLA), Forum for Climate Engineering Assessment, Solar Radiation Management Governance Initiative, Carnegie Climate Geoengineering Governance Initiative (C2G).  
URL: <https://law.ucla.edu/academics/centers/emmett-institute-climate-change-environment/sixth-summer-school-geoengineering>
- Awarded with a full scholarship for the summer school program (covering registration fee, three meals per day, accommodation at Banff, Alberta, Canada, and transportation). The awardees joined from across the globe to facilitate discussions on the technological responses to climate change and the prospects and risks of climate geoengineering.

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## EMPLOYMENT

- July 2021 -      **Research Associate (Full-time)**  
continued      School of Planning, Faculty of Environment,  
University of Waterloo, Ontario, Canada
- Project: Developing methods for analyzing space-time data: A Bayesian approach  
Funding agency: Natural Sciences and Engineering Research Council of Canada (NSERC)
- Responsibilities fulfilled: Preparing manuscripts and assisting in the preparations of grant applications. Assisting in the Bayesian spatiotemporal analysis and studying built-environment factors using remote sensing, GIS, and machine learning techniques.

October 2020-  
June 2021

**Senior Research Officer (Full-time)**

Infectious Diseases Division (Program on Emerging Infections)  
International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)

Project: CHAMPS – Child Health and Mortality Prevention Surveillance

Type: Multi-country (Bangladesh, Ethiopia, Kenya, Mali, Mozambique, Sierra Leone, South Africa)

Details: <https://champshealth.org/>

Funding Agency: Bill and Melinda Gates Foundation

Responsibilities fulfilled: Developing enhanced spatial sampling technique for population-based representative health surveys of the project. Updating and assessing the quality and scientific rigor of the questionnaire tools used in the project's demographic and health surveillance. Training and supervising survey data collection, data processing, and analyses for 3 months long surveys of:

- The World Health Organization (WHO): “Indirect effects of the COVID-19 pandemic on utilization of essential maternal newborn and child health services and experiences of communities and services providers”
- CHAMPS: “Assessing the impact of COVID-19 pandemic in rural Bangladesh”.

September  
2018 –  
August 2021

**Graduate Research and Teaching Assistant (Part-time)**

School of Public Health and Health Systems, Faculty of Applied Health Sciences

School of Planning, Faculty of Environment

University of Waterloo, Ontario, Canada

Courses taught:

- AHS 107 (Sociology of Activity)
- PLAN 305 (Research Methods for Planners)
- HLTH 661(Geographic Information Systems and Public Health)

Responsibilities fulfilled: Providing lectures (2 classes; 3 hours/week) for the AHS 107 course, supervising lab classes (2 classes; 2 hours/week) for the PLAN 305 course, and guiding students in spatial analysis for the graduate-level HLTH 661 course. Other responsibilities fulfilled include:

- Assisting course instructors in developing the course syllabus.
- Checking quizzes, examination copies, final essays, and group presentations.
- Assisting course instructor (PLAN 350) to transform an entire in-person and lab-intensive course into an online course during the COVID-19 pandemic.

January 2017-  
August 2018

**Senior Research Assistant (Full-time)**

Infectious Diseases Division (Program on Emerging Infections)

Maternal and Child Health Division

International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)

Project 1: CHAMPS – Child Health and Mortality Prevention Surveillance

Type: Multi-country (Bangladesh, Ethiopia, Kenya, Mali, Mozambique, Sierra Leone, South Africa)

Details: <https://champshealth.org/>

Funding Agency: Bill and Melinda Gates Foundation

Project 2: MaMoni Health Systems Strengthening (MaMoni HSS) project  
Type: National/regional (Bangladesh)  
Details: <http://mamoni.info/>  
Funding agency: United States Agency for International Development (USAID)

Project 3: Interrupting Pathways to Sepsis Initiative (IPSI)  
Type: National/regional (Bangladesh)  
Details: [www.designaid.org/ipsi/](http://www.designaid.org/ipsi/)  
Funding agency: Global Affairs Canada, the MUSKOKA Initiative on Maternal, Newborn and Child Health

Responsibilities fulfilled: Developing GIS-based health and demographic surveillance system and supervising a six-month-long health survey for the CHAMPS project as a ‘**Co-Investigator**’. Assessing the efficacy of the MaMoni project in increasing the utilization of healthcare facilities by pregnant women in geographically hard-to-reach areas. Evaluating the performance and success of a GIS-based emergency referral transport system under the IPSI project.

August 2016 – **Research Assistant (Full-time)**  
December  
2016  
Urban Studio,  
Department of Geography and Environment, Faculty of Earth and Environmental Sciences  
University of Dhaka, Dhaka, Bangladesh

Project: Adaptation of Climate Change Induced and Environmentally Stressed Internally Displaced People: A Study on the Dhaka Metropolitan Region  
Type: Government (Bangladesh)  
Funding agency: Ministry of Environment and Forests, Government of People’s Republic of Bangladesh

Responsibilities fulfilled: Identifying climate change vulnerable areas in Bangladesh using geospatial techniques and mapping the migration pattern from these areas to the capital city, Dhaka, using questionnaire survey data.

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## PROFESSIONAL CERTIFICATION

August 2018 **Protecting Human Research Participants**  
The National Institutes of Health  
United States Department of Health and Human Services  
  
Credential ID: 2887420

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## LEADERSHIP AND COMMUNITY ENGAGEMENT ACTIVITIES

2019 **Senior Advisor**  
The University of Waterloo Bengali Student Association  
URL: [www.facebook.com/UWLOBSA/](http://www.facebook.com/UWLOBSA/)  
  
The Bangladesh Student Association at the University of Waterloo comprises over 500 members and alumni. The BSA aims to share Bengali culture amongst students both on and off-campus. As a ‘Senior Advisor’, I provided direct support to the President and the Executive Committee to help the new undergraduate and graduate students smoothly transition into the Canadian culture and the University of Waterloo’s academic environment.

2019

**Team Leader**

Microsoft Canada Discover Artificial Intelligence Challenge: Sustainable Life  
URL: [www.agorize.com/en/challenges/sustainable-life](http://www.agorize.com/en/challenges/sustainable-life)

Proposed project: Developing a resource management system for Rohingya refugee sites using Artificial Intelligence

In the Microsoft Canada Discover AI Challenge, I led my team comprising two other PhD students from the University of Waterloo, to employ an integrated suite of machine learning and AI algorithms to monitor resource allocation systems in the Cox's Bazaar district of Bangladesh, which currently accommodates over 1 million Rohingya refugees.

2015-2017

**President**

Environment Club,  
Department of Geography and Environment, University of Dhaka  
URL: [www.facebook.com/EnvclubGEdu](http://www.facebook.com/EnvclubGEdu); [www.aymabdullah.com/envactivism](http://www.aymabdullah.com/envactivism)

The Environment Club (EC) is the biggest university-based environment club in Bangladesh, comprising over 400 active members and 1000 alumni. As the president, I organized national events that aimed to raise youth's awareness and participation in the critical environmental issues of Bangladesh. I was the founder and Chief Organizer of:

- National Art Competition (for grade 1 to 6 students)
- National Environment Olympiad (for grade 9-12 students)
- National Environment Debate Championship (for university students)
- National Environment Case Presentation Competition (for university students)

The Government of the People's Republic of Bangladesh recognized these events as one of the top five series of environmental events in the 'World Environment Day, 2014'. Consequently, I received the "*Outstanding Contributions Award, 2017*" from the University of Dhaka for being the founder and Chief Organizer of these national events.

2015-2016

**Convener**

Dhaka University Debating Society, University of Dhaka  
URL: [www.facebook.com/duds.org](http://www.facebook.com/duds.org); [www.aymabdullah.com/debating](http://www.aymabdullah.com/debating)

Dhaka University Debating Society (DUDS) is a 40-year-old debating club and comprises over 500 active debaters and 10,000 alumni. As a 'Convener', I organized debate workshops, trained debaters from the remotest and the most rural areas of Bangladesh on English debate. Additionally, I led the 'Team Bangladesh' from the University of Dhaka to the following international debate tournaments:

- University of Cambridge Debating Championship, UK, 2014
- University of Oxford Debating Championship, UK, 2014
- University of Cambridge Debating Championship, UK, 2013
- Singapore Management University Debating Championship, Singapore, 2013
- OIC Intervarsity Debating Championship, Malaysia, 2012

2012

**Champion**

United Nations Millennium Development Goals Presentation Competition  
Presentation title: Gender violence and sex-selective fetal abortions