

Ammara Talib

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Present address
302 Ashmun Street
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EDUCATION

University of Wisconsin Madison
Civil and Environmental Engineering PhD
GPA 3.5/4.0
Graduation: Aug 2023

University of Massachusetts Amherst
Environmental Conservation MS

University of Punjab Lahore
Earth and Environmental Sciences BS
GPA 3.78/4.0

POSTDOCTORAL FELLOWSHIP

Yale University (Oct 2024-present)
Harvard University (Sep 2023-Sep 2024)

HONORS AND AWARDS

Water Resource Women Research Award	2024
Medical School funding scholarship, FulMed.org	2023
Premed Award, FulMed.org	2022
Grant A Harris Instrumentation Fellowship	2019
Climate, People, and the Environment Program Award	2017
Chancellor's Opportunity Award, University of Wisconsin Madison	2015
Academic Scholarship, University of Massachusetts Amherst	2015
Fulbright Scholarship, University of Massachusetts Amherst	2012-2015
Merit Scholarship, Punjab University Lahore, Pakistan	2007,2009

PROFESSIONAL SOCIETIES /ORGANIZATIONS

American Geophysical Union
Wisconsin Potatoes and Vegetable Growers Association

Ameriflux: United States Department of Energy
Worked with principal investigators to process CO₂, water, and energy fluxes data measured at the ecosystem level at managed sites across the USA to represent major climate and ecological biomes.

MEDICAL-RELATED EXPERIENCE

Patient Care Volunteer 05/2025-07-2025
Yale Haven Free clinic
New Haven, CT

I would assist in providing healthcare services to underserved and uninsured patients by guiding patients through the clinic process, assisting with patient intake, including gathering medical histories and vital signs, educating patients on available resources and follow-up care and supporting healthcare providers in ensuring smooth clinic operations

Physician Shadowing 02/2025-present
Internal Medicine
Yale New Haven Hospital
New Haven, CT

Observed the diagnosis and management of substance use disorders and gained insight into medication-assisted treatment (MAT) for opioid and alcohol addiction. Observed patient consultations, including discussions on withdrawal symptoms, relapse prevention, and harm reduction strategies, learned about the interdisciplinary approach involving physicians, social workers, and counselors to address both medical and psychosocial aspects of addiction

Patient care volunteer 10/2024-present
The Connecticut Hospice, Inc.
Branford, CT

Provided comfort and support to terminally ill patients and their families. Offered companionship and emotional support through conversation, reading, and presence. Assisting with meals and ensuring comfort. Gained insight into end-of-life care, palliative treatments, and caregiving
Supervisor: Joan Cullen, Director of Volunteers

Patient care volunteer 03/2024-08/2024
Yawkey Center for Cancer Care
Massachusetts General Hospital
Boston, MA

Supervisor: Kim Northrup, Volunteer Coordinator

Offering comfort and companionship to patients undergoing chemotherapy and other treatments, assisting with patient needs, such as providing blankets, and refreshments, helping staff with tasks to improve clinic efficiency

Caregiver, Personal Care Attendant
Healthcare aid for a patient with quadriplegia
Madison, WI

01/2023-08/2023

Assisted with personal hygiene, mobility assistance, bowel and bladder care by suprapubic catheter and ostomy bag draining and cleaning, medication management, transferring the patient from the bed to a wheelchair, monitoring health by observing for any signs of pressure sores, complications, or infections.

Clinical Observation
Pediatric Neurology
University of Wisconsin Health Hospital
Madison, WI

01/2023-07/2023

Shadowed in the outpatient clinics and OR and attended pediatric conferences where the medical team discussed pediatric neurology case studies. Observed patients with a wide range of health conditions such as epilepsy, Sturge-Weber syndrome (SWS), anoxic encephalopathy, Jefferson's syndrome, pyruvate dehydrogenase deficiency, spina bifida, cerebral palsy, autism, ADHD, muscular dystrophy, brain tumors, subtotal hemispherectomy, encephalomalacia, reviewed sEEGs, and MRI with the physician.
Physician: David Hsu, MD. PhD

Crisis Counselor
Crisis Text Line (Global nonprofit organization)
United States

09/2022-02/2024

Trained to create a dialogue with texters looking for help, de-escalating the crisis at hand, and providing compassionate support using active listening, collaborative problem-solving, and safety planning. Provided support to about 335 texters for a range of problems such as gun violence, anxiety, eating disorders, depression, suicide, and self-harm.
Nancy Lubin, CEO

Volunteer in the Hospital
Surgery Unit, Neuroscience Unit
UW University of Wisconsin Hospital and Clinics
Madison, WI

10/2022-07/2023

Visited with patients to find out what I could do to make their day better, offered to get them reading material, tidied the room, watered flowers, restocked supplies in the patient room, assisted in patient care activities, and observed medical examinations. Spent time talking with patients and got to know them, assisted HUC and CNA with call lights, asked medical staff if any patients could go outside to the healing garden during nice weather, and escorted them.
Supervisor: Sue Tipple, MSN, RN, CNML

Clinical Observation

05/2020-08/2022

Web Shadows and Tele Shadowing
Orlando, FL

Virtually shadowed doctors with different specialties, such as cardiologists, endocrinologists, general surgery, internal medicine, interventional radiologists, psychiatrists, orthopedics, and gastroenterologists. Participated in interactive discussions related to case studies of patients with chronic pain, asthma, pheochromocytoma, graves disease, diabetes, burns, hyperlipidemia, coronary artery disease, fatty liver disease, angina, myocardial infarction, rheumatoid arthritis, pulmonary embolism, uterine artery embolization, cervical cancer, radiation-induced lumbosacral plexopathy, epidural hematoma, multiple sclerosis plaques, pulmonary alveolar edema. Quizzed after interacting with physicians about the case studies and learning material presented during the virtual shadowing.

Clinical Observation

02/2020-03/2020

Cardiovascular Medicine
University of Wisconsin Health Hospital
Madison, WI

Observed patients in outpatients clinics with range of cardiovascular diseases and conditions such as heart murmur, chest pain, cardiomyopathy, atrial flutter, atrial fibrillation, mitral valve regurgitation, cardioverter defibrillators, heart catheterization. Observed Dr. Kamp performing medical exams such as cardiac auscultation, blood pressure measurement, peripheral pulse examination, jugular venous pressure (JVP) assessment, edema evaluation, chest examination, abdominal examination, assessment of peripheral arterial disease (PAD), reviewed electrocardiogram (ECG or EKG), echocardiogram (Echo), stress tests, angiography reports, cardiac MRI and CT scan, and blood tests.

Physician: Dr. Timothy Kamp MD. PhD

Volunteer in the Emergency Room

09/2019-03/2020

University of Wisconsin Hospital and Clinics
Madison, WI

Attended patients; answered call lights and rounded every 1/2 hour; made certain that call light was within the patient's reach; gave patients food or drink; facilitated communication at the direction of the primary nurse or Care Team Leader, Social Worker, or other ED Staff between providers and family members with regard to updates, delays, etc. Brought needed items to patients or family members; escorted/directed patients or visitors to exam rooms, X-ray, and

pharmacy; directed to admissions if the patient will be admitted to the hospital; delivered patient belongings to inpatient rooms as directed, changed and cleaned beds, ordered and delivered food trays, soda/juice for ED fridge.

Supervisor: Dianna Bower, RN

Clinical Observation

09/2019-01/2020

Department of Orthopedics, Sports medicine

University of Wisconsin Health Hospital

Madison, WI

Shadowed in the outpatient clinics and the OR, observed him performing surgical procedures such as knee osteotomy, ACL reconstruction surgery, Medial patella-femoral ligament (MPFL) reconstruction surgery, knee replacement, posterior cruciate ligament (PCL) surgery, and meniscus injury treatment.

Physician: Geoffrey Baer MD. PhD

Caregiver, Personal Care Attendant

07/2016-09/2016

Healthcare aid for patients with neurological disorders

Madison, WI

Healthcare aid for a patient with advanced Parkinson's disease and another patient with cerebral palsy, medication management, assistance with activities of daily living such as dressing, grooming, and eating, mobility support, preparation of meals that were easy to chew and swallow, monitoring for signs of dysphagia, monitoring of safety risks due to symptoms such as freezing of gait, falls, coordination of care, including scheduling medical appointments, arranging transportation, and communicating with healthcare providers, assisted with physical therapy exercises, facilitated communication using communication boards, and ensured proper positioning and feeding techniques to prevent choking or aspiration.

Teaching experience

Teaching Assistant

2019-2023

Introductory Biology laboratory (Bio 151, Bio 152)

University of Wisconsin Madison

Madison, WI

Teaching Assistant

09/2018-12/2018

Meteorological measurement course (AOS 404).

University of Wisconsin Madison

Madison, WI

High school Science Teacher

2011-2012

Quest High School

Lahore, Pakistan

Facilitated student learning by guiding them through laboratory activities; explained lab procedures, techniques, and safety protocols; demonstrated proper laboratory techniques and procedures to students, including how to use equipment, handle specimens, perform experiments, and collect data; graded lab reports, assignments, quizzes, and lab notebooks, offered guidance on understanding lab procedures, interpreting data, and integrating lab findings with lecture material. Served as mentor and advisor to students, offering academic guidance, career advice, and encouragement.

WORKSHOPS & PROFESSIONAL DEVELOPMENT

Graduate Assistants' Equity Workshops, Division of Diversity 2016
Equity & Educational Achievement Workshop
Madison, WI

Received information about promoting interdisciplinary dialogue and excellence through diversity.

Neural Networks and Deep Learning 06-08 2018
Coursera

Completed four courses on Coursera, learned the mathematics behind the machine learning based models, used standard techniques and optimization algorithms to build neural networks in TensorFlow
Supervisor: Andrew Ng, PhD

COMMUNITY OUTREACH EXPERIENCE

Volunteer 03-2025-present
A place to nourish your health (APNH) organization
New Haven CT

Mission of organization is to provide access to high quality, relationship-based care to inspire health
Supervisor: Erica Rodriguez, MSOP

Volunteer 10-2024-present
Community Action organization (CCA)
for affordable food,
Emergency housing and financial aid
New Haven CT

CCA offers services to the community that meet their most fundamental and emergency needs and promote social and economic sustainability.
Supervisor: Charmain Yun

Member at Outreach Committee 09/2021-05/2023
Water Resource Engineering Outreach Committee
University of Wisconsin Madison
Madison, WI

Involved in fostering and developing opportunities to help create an academic environment that is more reflective of our society, improve access to opportunities, and promote underrepresented groups into leadership positions within the department and the profession, involved in organizing events such as Engineering Expo, WI Science Festival
Supervisor: Daniel Wright, PhD

Member at Cardiac on Campus Organization 09/2021-05/2023
University of Wisconsin Madison
Madison, WI

Involved in promoting awareness of cardiac health and increasing accessibility of cardiac health care, hosting free CPR/AED certification classes, donating AEDs to campus buildings.
Supervisor: Larissa Blazek and Maddie Kranz

Listener for Emotional Support during crisis 11/2020-02/2022
therapy
Global nonprofit mental health organization

Trained to provide an online support network for people needing emotional or mental health support, referred people needing more intensive services to professional therapists. Provided mental health support to 324 texters through a range of issues such as ADHD, alcohol/drug use, anxiety, bipolar, boundaries, bullying, chronic pain, college life, coping with schizophrenia, crisis intervention, cultural diversity, depression, diabetes, eating disorders, exercise motivation, family stress, and acceptance & commitment therapy. Out of all the texters I helped, 57 texters were repeated users.
Supervisor: Glen Moriarty, Psy.D

Volunteer 06-2011-08-2011
Waste Busters, waste management company
Lahore, Pakistan

Involved in translating a children's storybook, "Environmental handbook for primary schools," from English to Urdu to raise awareness of solid waste management, recycling, and composting.
Supervisor: Stefanie Andruchowitz

Volunteer 06-2010-08-2010
Environmental Protection Agency (EPA)
Lahore, Pakistan

Involved in conducting Environmental Impact assessment of many development projects in Pakistan, including infrastructure and industry projects.
Supervisor: Yumna Sadeef, PhD

Volunteer 06-2009-12-2009
Greenlays Clean Pakistan
Lahore, Pakistan

Involved in promoting waste management, recycling, and composting, door to door collections of solid waste, recyclable materials or food waste from campus and nearby residential areas.
Supervisor: Yumna Sadeef, PhD

RESEARCH EXPERIENCE

Postdoctoral Fellow 2024-Present
Yale School of Environment
Yale University
New Haven, CT

Quantifying the effect of salinity on water use efficiency and carbon use efficiency in coastal ecosystem across the USA
Supervisor: Sparkle Malone, PhD

Postdoctoral Fellow 2023-2024
Harvard John A. Paulson School of Engineering and Applied Sciences
Harvard University
Cambridge, MA

Analysis of temporal and spatial variability in precipitation and streamflow to evaluate the impacts of climate change on eastern USA Forests. Quantify the role of ecosystem disturbance and succession on vegetation-climate and water coupling.
Supervisor: Jackie Matthes, PhD

Research Assistant 2017-2023
Department of Civil and Environmental Engineering
University of Wisconsin Madison
Madison, WI

Developing machine learning based and process-based models for water budget in Central Sands Wisconsin. Improving parameterization of a regional irrigation scheduling program for evapotranspiration estimation with eddy covariance measurements. Evaluation of prediction

and forecasting models for evapotranspiration of agricultural lands in the Midwest U.S,
Spatial and Temporal Forecasting of Groundwater anomalies
Supervisor: Ankur Desai, PhD

Laboratory Assistant 2015-2016
Environmental Fluid Mechanics Lab
University of Wisconsin Madison
Madison, WI

Prediction modeling for nitrogen and phosphorus in agricultural watersheds for water quality
management
Supervisor: Chin Wu, PhD

Fulbright Research Associate 2012-2015
Department of Environmental Conservation
University of Massachusetts Amherst
Amherst, MI

Assessment of impacts of land use land cover and climate change on water resources in SuAsCo
watershed, Massachusetts, managing emerging contaminants in watersheds: need for
comprehensive, systems-based strategies.
Supervisor: Tim Randhir, PhD

Research Assistant 2009-2011
Department of Earth & Environmental Sciences
University of Punjab Lahore, Pakistan
Lahore, Punjab

Environmental Impact Assessment (EIA) of Pan power plant near residential area in Pakistan.
The EIA covered potential effects of the construction and operation activities of the proposed
power plant on the physical, biological, socio-economic, archaeological and cultural
environments and the mitigation measures that will be adopted to reduce or minimize these
impacts.

Supervisor: Muhammad Jamal ud Din Ahmed Qureshi, PhD

CV: Taught students basic biology laboratory techniques, including aseptic techniques, plating
methods, how to formulate hypotheses and prediction according to the scientific method. I was
given the opportunity to develop my own lesson plan for one of the classes and teach the class
myself. I enjoyed being a TA, and I gained a greater appreciation for educators.

ABSTRACTS

JH Matthes, JW Munger, S Jurado, N Hegwood, **Talib A**, A decade of precipitation extremes shape long-term forest-atmosphere carbon and water flux within a temperate mesic forest American Geophysical Union Conference New Orleans, LA, 2024

Talib A, Matthes J, Examining Interactions of Disturbance, and Water Cycling in the Eastern US with Ecosystem-Atmosphere Observations and Models, Saint Paul, MN, Water Science Conference, 2024.

Desai, A.R., **Talib A**, Water Use by Crops and Forests in the Central Sands. Wisconsin Potato Vegetables & Growers Association, Grower Education Conference & Industry Show, Stevens Point, WI, 2023.

Desai, A.R., **Talib A**, Predicting Central Sands Crop Water Use. Wisconsin Potato Vegetables & Growers Association, Grower Education Conference & Industry Show, Stevens Point, WI, 2022.

Desai, A.R., J. Thom, S. Wiesner, B. Butterworth, N. Koupaei-Abyazani, A. Merrelli, B. Murphy, A. Muttaqin, S. Paleri, **Talib A**, J. Turner, J. Mineau, From Half-Hour to Quarter Century- Drivers of Carbon Fluxes Across a Northern Ecosystem Tower Cluster, American Geophysical Union Fall Conference, New Orleans, LA, 2021.

Talib A, Desai, A. R. What Have We Learned from Continuous Crop and Forest Evapotranspiration Observations in the Central Sands? Wisconsin Potato Vegetables & Growers Association, Grower Education Conference & Industry Show, Stevens Point, WI, 2020.

Talib A, Desai, A. R. Improving Irrigation Planning and Early Prediction for Agricultural Drought in Wisconsin, American Geophysical Union Fall Conference, virtual, 2020.

LA Ebert, AJ Chisholm, J Prater, SC Zipper, **Talib A**, AR Desai, MA Nocco. How High to Fly? Evaluating Different Elevations for Mapping Evapotranspiration from Remotely Piloted Aircrafts, American Geophysical Union Conference , 2020.

Talib A, Desai, A. R. Improving Forecasts of Crop Water Demand with Direct Evapotranspiration Measurements Over Irrigated Fields, Wisconsin Potato Vegetables & Growers Association, Grower Education Conference Industry Show, Stevens Point, WI, 2019.

Talib A, Desai, A. R. Field-scale Mapping and Forecasting of Water Budgets in Intensively Irrigated Agricultural Regions Through an Advanced Ensemble Modeling Framework, American Geophysical Union, Conference, San Francisco, CA, 2019.

LA Ebert, AJ Chisholm, J Prater, SC Zipper, **Talib A**, AR Desai, MA Nocco. Using Remotely Piloted Aircrafts to Evaluate Potato Water Stress in Central Wisconsin, American Geophysical Union, Fall Conference, San Francisco, CA, 2019.

- Talib, A.** and Desai, A. R. Efficacy of Machine Learning Algorithms for Identifying Hotspots of Groundwater Depletion in Intensively Irrigated Agricultural Regions, American Geophysical Union, Fall Conference, Washington, DC, 2018.
- Nocco, M. A. ; McNamee, E. O. ; Bohman, B. ; **Talib, A.** ; Rosen, C. J. ; Desai, A. R. ; Kern, C. C. ; Kucharik, C. J. ; Twine, T. E. Pine to Potato Conversion Impacts to Groundwater Recharge in the Northern Great Lakes Region, American Geophysical Union, Conference, Washington, DC, 2018.
- Talib, A.** and Desai, A. R., Water from Ground to Sky: New approaches to Observing and Predicting Field to Basin Scale Evapotranspiration Over Crops and Plantations, Wisconsin Potato Vegetables & Growers Association, Grower Education Conference & Industry Show, Stevens Point, WI, 2018.
- Talib, A.** and Desai, A. R. Groundwater-Surface water interaction in Agricultural Watershed that Encompasses Dense Network of High-Capacity Wells, American Geophysical Union, Conference, New Orleans, LA, 2021.
- Talib, A** and Randhir. 2014. Land Use Land Cover Impacts on Water Quantity and Quality in Watershed Systems, 69th SWCS International Annual Conference, Making Waves in Conservation, Our Life on Land and Its Impacts on Water, Lombard, IL, 2014.
- Talib, A** and Randhir T. Integrated Assessment of Land Use Land Cover and Climate Change Impacts on Water Quantity and Quality in Sudbury, Assabet and Concord Watershed System, 2014 American Water Resource Association, Summer Specialty Conference on Integrated Water Resources Management, from theory to application Reno, NV, 2014.
- Talib, A** and Randhir T. Climate Change Impacts on Water Quantity and Quality in Watershed Systems, Universities Council on Water Resources, National Institutes for Water Resources, Consortium of Universities for the Advancement of Hydrologic Science, Inc Conference on Water Systems, Science, and Society under Global Change, at Tuft University Medford, MA, 2014.
- Talib, A** and Randhir T. Climate Change Impacts on Water Resources, Northeast Natural History Conference (NENHC), Springfield, MA, 2014.

PUBLICATIONS

- Talib A.** Matthes J, Green M, Analysis of Increasing Evapotranspiration Across New England Long-Term Forest Research Sites. (In preparation)
- Orwig, D., Matthes, J., **Talib, A.**, Boose E., Munge, J.W., Chung, K., Inyama, F., et al., Long-Term Shifts in Forest Structure and Ecosystem Function with the Decline of a Foundation Species, Global Change Biology. (In preparation)
- Talib A.** Matthes J, Coupled Carbon and Water Cycling in a Temperate Forest Under Increasing Climatic Disturbance. (In preparation)

- Talib, A.,** Desai, A. R., Huang, J., Spatial and Temporal Forecasting of Groundwater Levels., <https://doi.org/10.1016/j.jhydrol.2024.131525>.
- Talib, A.,** Desai, A. R., Huang, J., Improving Parameterization of a Regional Irrigation Scheduling Program for Evapotranspiration Estimation with Eddy Covariance Measurements, Journal of Agricultural and Forest Meteorology, 2024. <https://doi.org/10.1016/j.agrformet.2024.109967>
- Talib, A., & Randhir, T. O.** Long-term Effects of Land-Use Change on Water Resources in Urbanizing Watersheds. Public Library of Science Water, 2(4), 2023. <https://doi.org/10.1371/journal.pwat.0000083>.
- Desai, A.R., J. Thom, S. Wiesner, B. Butterworth, N. Koupaei-Abyazani, A. Merrelli, B. Murphy, A. Muttaqin, S. Paleri, **A. Talib**, J. Turner, J. Mineau. Drivers of Decadal Carbon Fluxes Across Temperate Ecosystems. Journal of Geophysical Research: Biogeosciences, 2022 <https://doi.org/10.1029/2022JG007014>.
- Ebert, L. **A., Talib, A.,** Zipper, S. C., Desai, A. R., Paw U, K. T., Chisholm, A. J., Prater, J., & Nocco, M. A. How High to Fly? Mapping Evapotranspiration from Remotely Piloted Aircrafts at Different Elevations. Remote Sensing, 14(7). 2022 <https://doi.org/10.3390/rs14071660>.
- Talib, A.,** Desai, A. R., Huang, J., Griffis, T. J., Reed, D. E., & Chen, J. Evaluation of Prediction and Forecasting Models for Evapotranspiration of Agricultural Lands in the Midwest US. Journal of Hydrology, 126579. 2021. <https://doi.org/10.1016/j.jhydrol.2021.126579>.
- Chatterjee, S., Stoy, P. C., Debnath, M., Nayak, A. K., Swain, C. K., Tripathi, R., Chatterjee, D., Mahapatra, S. S., **Talib, A.,** & Pathak, H. Actual Evapotranspiration and Crop Coefficients for Tropical Lowland Rice (*Oryza sativa* L.) in Eastern India. Theoretical and Applied Climatology, 146(1–2).2021. <https://doi.org/10.1007/s00704-021-03710-0>.
- Talib, A** and T. O. Randhir. Climate Change and Land Use Impacts on Hydrologic Processes of Watershed Systems Journal of Water and Climate Change , 2017. <https://doi.org/10.2166/wcc.2017.064>.
- Talib, A.** and T. O. Randhir, Managing Emerging Contaminants in Watersheds: Need for Comprehensive, Systems-based Strategies, Sustainability of Water Quality and Ecology, 2017. doi: <https://doi.org/10.1016/j.swaqe.2016.05.002>.
- Talib, A.** and Randhir T. O. Managing Emerging Contaminants: Status, Impacts, and Watershed-Wide Strategies. Exposure and Health 8:143–158. 2016. doi: [10.1007/s12403-015-0192-4](https://doi.org/10.1007/s12403-015-0192-4).

EXTRACURRICULAR ACTIVITIES

Zumba and yoga, Skincare, Meal prep, Henna painting, Podcast

LANGUAGES

English, Urdu, Punjabi, Hindi, Arabic

REFERENCES

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