

JAWAIRIA ASHFAQ AHMAD

0146, Engineering Laboratory Building, Department of Civil and Environmental Engineering
A. James Clark School of Engineering, University of Maryland, College Park 20742
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Education

- Aug 2018 - Present **Ph. D. Water Resources Engineering** (*Academic Advisor: Dr. Barton Forman*)
Department of Civil and Environmental Engineering,
University of Maryland, College Park, U.S.A.
- Aug 2016 - May 2018 **M.S. Water Resources Engineering**
Department of Civil and Environmental Engineering,
University of Maryland, College Park, U.S.A.
CGPA = 3.96/ 4.00 (*Academic Advisor : Dr. Barton Forman*)
Thesis title: Sensitivity analysis of support vector machine predictions of passive microwave brightness temperatures over snow-covered terrain in high mountain Asia
- Sep 2011 - Jul 2015 **B.S. Civil Engineering**
University of Engineering and Technology (U.E.T), Peshawar, Pakistan.
CGPA = 3.81/ 4.00 (2nd among 180 students)
Final Year Project: Analysis of the effect of protective coatings on the rate of reinforcement corrosion in sewers (using microscopic analytic techniques)

Publications

- Ahmad, J. A.**, Forman, B. A., & Kwon, Y. (2019), “Analyzing machine learning predictions of passive microwave brightness temperature spectral difference over snow-covered terrain in High Mountain Asia”, *Frontiers in Earth Science*, 7, 212.
- Kwon, Y., Forman, B.A., **Ahmad, J.A.**, Kumar, S.V. and Yoon, Y. (2019), “Exploring the Utility of Machine Learning-Based Passive Microwave Brightness Temperature Data Assimilation over Terrestrial Snow in High Mountain Asia”, *Remote Sensing*, 11(19), p.2265.
- Bair, E., Rittger, K., **Ahmad, J.**, and Chabot, D. (2019), “Validation of modeled snow properties in Afghanistan, Pakistan, and Tajikistan”, manuscript in review in *The Cryosphere*.
- Ahmad, J. A.**, Forman, B. A. (2019), “Diagnostic analysis of a data assimilation framework for improving snow mass estimation in complex terrain”, manuscript submitted to IGARSS 2020.

Conference Presentations

- Kwon, Y., Forman, B.A., **Ahmad, J.A.**, Kumar, S.V. and Yoon, Y. (Dec 2019), “Pitfalls and perils of machine learning-based passive microwave brightness temperature data assimilation over terrestrial snow in High Mountain Asia”, Poster presentation at AGU Fall Meeting, San Francisco, CA, USA.
- Ahmad, J. A.**, Forman, B. A., Kumar, S., Bair, E. (Jun 2019), “Snow estimation in complex terrain using the NASA Land Information System”, Poster presentation at 76th Eastern Snow Conference, Fairlee, VT, USA.
- Ahmad, J. A.**, Kwon, Y., Kumar, S., and Forman, B. A. (Dec 2018), “Integrating machine learning and brightness temperature assimilation to improve snow estimates over high mountain Asia”, Poster presentation at AGU Fall Meeting, Washington D.C., USA.
- Ahmad, J. A.** and Forman, B. A. (Jun 2018), “Support vector machine predictions of passive microwave brightness temperatures over snow-covered terrain: What are the sensitivities and potential pitfalls of machine learning?”, Presentation at 75th Eastern Snow Conference, College Park, MD, USA.
- Ahmad, J. A.** and Forman, B. A. (Dec 2017), “Sensitivity of support vector machine predictions of passive microwave brightness temperature over snow-covered terrain in high mountain Asia”, Poster presentation at AGU Fall Meeting, New Orleans, LA, USA.

Work Experience

- Aug 2016 – Present **Department of Civil and Environmental Engineering, University of Maryland, College Park, U.S.A**
Graduate Research Assistant
Teaching Assistant, ENCE 305- Fundamentals of Engineering Fluids (Spring 2019)
- Aug 2015 – Mar 2016 **Electra Consultants, Pakistan**
Junior Engineer (Member of hydrologic design team)
- 40.80 MW Koto Hydropower Project, District Lower Dir, Khyber Pakhtunkhwa, Pakistan
 - 24 MW Stak Hydropower Project, District Skardu, Gilgit Baltistan, Pakistan
 - 2.60 MW Machai Hydropower Project, District Mardan, Khyber Pakhtunkhwa, Pakistan

Workshops/ Seminars Attended

- Jun 2019 **Innsbruck Summer School of Alpine Research**
Innsbruck, Austria
Practical implementation of various close range remote sensing techniques such as photogrammetry, laser scanning, and thermal imagery. Data analysis for ranging, soil erosion research, vegetation seasonality, and change detection using LiDAR.
- Jan 2018 **CUAHSI Snow Measurement Field School**
Fraser, Colorado, U.S.A
Practical implementation of various techniques to measure snow characteristics (including depth, density, water equivalence, grain size and shape, stratigraphy, and temperature) using state-of-the-art tools
- Aug 2017 **NASA Summer School on Satellite Observations and Climate Models**
JPL Center for Climate Sciences & Keck Institute for Space Studies, Caltech, Pasadena, U.S.A.
Training provided on utilization of various satellite observations to evaluate and improve climate models.

Honors and Awards

- **Graduate Summer Research Fellowship (UMD), 2019**
- **Dean's Fellowship (UMD), 2018**
- ATA Aerospace travel grant (CUAHSI), 2018; Jacob Goldhaber travel grant (UMD), 2017
- **Fulbright Foreign Student Scholarship, 2016-2018**
- Cash Prize for Talented Students from U.E.T Peshawar, 2011-2015
- First in Females (10th among over 16,000 examinees) in Educational Testing and Evaluation Agency Engineering Examination, 2011

Leadership Experience

- Aug 2019 – Present **President** of Graduate Student Council- Dept. of CEE, UMD
Oversaw all aspects of the CEE GSC, organized monthly meetings, represented the Council through interactions with faculty, students, and other societies, facilitated graduate student.
- Aug 2018 – Jul 2019 **Vice-President** of Graduate Student Council- Dept. of CEE, UMD
Worked with the CEE GSC members to organize social and academic events for graduate students, oversaw Council budget, and helped resolve graduate student issues.
- Sep 2018 – Present **Mentor** at Learning Engineering and Design (LEAD) E-Mentor Program (mentorship of female STEM students at Elizabeth Seton High School).