

# Dr. Ijaz Ahmad

## PERSONAL DETAILS

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Address: Office No. 9, CEWRE, University of Engineering  
University of Engineering and Technology, 20  
GT Rd., Lahore 54890, Pakistan

Email: [ijaz.ahmad@cewre.edu.pk](mailto:ijaz.ahmad@cewre.edu.pk)

Mobile: +92 333 8986297

Date of Birth: 10 Oct 1986

Nationality: Pakistani



## EDUCATION HISTORY

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- Sep 2012 – Dec 2015** **Doctor of Engineering (PhD)**  
Hydraulic and Hydropower Engineering  
Hohai University, Nanjing 210098, PR China  
[www.hhu.edu.cn](http://www.hhu.edu.cn)  
*Dissertation Title: Research on the Multipurpose Water Allocation Techniques under Climate Change*
- Sep 2008 – Aug 2010** **Master of Science (M.Sc.)**  
Water Resources Management  
University of Engineering and Technology, Lahore, Pakistan  
[www.uet.edu.pk](http://www.uet.edu.pk)  
*Dissertation Title: Evaluation of Design and Layout for Dewatering of Foundation Pit at Taunsa Barrage, Pakistan*
- Sep 2004 – Jul 2008** **Bachelor of Science (B.Sc.)**  
B.Sc. Engineering (Agri.)  
University of Agriculture, Faisalabad, Pakistan  
[www.uaf.edu.pk](http://www.uaf.edu.pk)

## WORK EXPERIENCE

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- Dec 2016 – Present** **Assistant Professor**  
Centre of Excellence in Water Resources Engineering,  
University of Engineering and Technology, Lahore, Pakistan  
[www.cewre.edu.pk](http://www.cewre.edu.pk)
- Postgraduate Courses taught/teaching:
- Flood Estimation and Control
  - Design of Hydraulic Structures
  - Reservoir Design and Operation
  - Drainage System Engineering
  - Water Quality Modeling and Management
- Sep 2016 – Dec 2016** **Assistant Professor**  
Water Management Research Center,  
University of Agriculture, Faisalabad, Pakistan  
[www.uaf.edu.pk](http://www.uaf.edu.pk)
- Postgraduate Courses taught:
- System Analysis for Integrated Water Resources Engineering
  - Resource Conservation Engineering

**Dec 2015 – Sep 2016 Senior Hydrological Engineer**

Shanghai Investigation, design and Research Institute Co. Ltd.  
(Pakistan Branch)  
House No. 20/B, Street 3, Sector F 8/3, Islamabad 44220,  
(Pakistan)  
<http://www.sidri.com>

Main Responsibilities:

- Hydrological Study of Catchments Area of Dam
- Rainfall Data Analysis and Runoff Studies
- Flood Estimation & Flood Routing
- Monthly/Yearly Reservoir Operation Studies
- Preparing Monthly Progress Reports
- Compilation of Detailed Design Report

**Aug 2010 –Aug 2012 Junior Engineer (Hydrology)**

Pakistan Engineering Services (Pvt.) Ltd.  
Street No. 12, Building No. 7, Sector B, Phase V, DHA, Lahore  
(Pakistan)  
<http://www.pespk.com>

Responsibilities and achievements:

- Hydrological and Environmental studies of Multipurpose Dam Projects
- Hydrology & Flood Risk Assessment and Management Studies
- Design flood Estimation for the Design of Spillways
- Rainfall-Runoff Simulations
- Flood Routing Studies for both Channel & Reservoir

**Research Interests**

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- Extreme Climatic Events Analysis, Modelling and Prediction
- Climate Change and its Impacts on Water Resources
- Watershed Modelling and Management
- Groundwater Hydrology and Modelling
- Reservoir Operation Optimization and forecasting
- Water Allocation Optimization under uncertainty

**Ongoing Research Projects**

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1. National project entitled "Flood Management, Characterization and Vulnerability Analysis using an integrated RS-GIS and 2D Hydrodynamic Modelling Approach" submitted to Higher Education Commission of Pakistan under Start-Up Research Grant Project **(Role: PI)**
2. National project entitled "Multivariate Projection framework for characterization of 21<sup>st</sup> century drought in Pakistan" submitted to Higher Education Commission of Pakistan under Start-Up Research Grant Project **(Role: Co-PI)**
3. National project entitled "Drought and Agricultural Production Nexuses in Punjab: Historical Patterns, Spatiotemporal Variability and Probabilistic Projection" submitted to Higher Education Commission of Pakistan under National Research Program for Universities **(Role: Co-PI)**

## LIST OF PUBLICATIONS

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### PEER REVIEWED JOURNAL PUBLICATIONS

**Cumulative Impact Factor of published articles: 28.631**

1. **Ijaz Ahmad**, M. Tayyab, M. Zaman, M.N. Anjum, X. Dong (2019) Finite Difference Numerical Simulation of Dewatering System in a Large-Deep Foundation Pit at Taunsa Barrage, Pakistan, *Sustainability*, (Accepted) [IF: 2.075]
2. Anjum, M.N., Y.J. Ding, **Ijaz Ahmad**, et al. (2018) Performance Evaluation of Latest Integrated Multi-Satellite Retrievals for Global Precipitation Measurement (IMERG) over Northern Pakistan, *Atmospheric Research*, 205: 134-146, <https://doi.org/10.1016/j.atmosres.2018.02.010> [IF: 3.817]
3. **Ijaz Ahmad**, F. Zhang, M. Tayyab, M.N. Anjum (2018) Spatiotemporal analysis of precipitation variability in seasonal, annual and extreme values over upper Indus River basin, *Atmospheric Research*, 213: 346-360, <https://doi.org/10.1016/j.atmosres.2018.06.019> [IF: 3.817]
4. Anjum, M.N., Y.J. Ding, J. Liu, **Ijaz Ahmad**, et al. (2018) Analysis of spatiotemporal variability of snow cover and climatic variables based on multi-source remote sensing data in the Swat watershed, Hindukush Mountains, Pakistan, *Meteorology and Atmospheric Physics*, <https://doi.org/10.1007/s00703-018-0584-7> [IF: 1.356]
5. **Ijaz Ahmad**, F. Zhang, J. Liu, M.N. Anjum, et al. (2018) A Linear Bi-level Multi-Objective Program for Optimal Allocation of Water Resources, *PLoS-One*, 13(2): 1-25 <https://doi.org/10.1371/journal.pone.0192294> [IF: 2.766]
6. Tayyab, M., X. Dong, **Ijaz Ahmad**, J.Z. Zhou, X. Zeng (2018) Identifying Half-Century Precipitation Trends in a Chinese Lake Basin, *Polish Journal of Environmental Studies*, 28(3): 1-16 <https://doi.org/10.15244/pjoes/85674> [IF: 1.120]
7. Zaman, M., S. Yuan, J. Liu, **Ijaz Ahmad**, M. Sultan, et al. (2018) Investigating Hydrological Responses and Adaptive Operation of a Hydropower Station under a Climate Change Scenario, *Polish Journal of Environmental Studies*, 27(5): 1-12, <https://doi.org/10.15244/pjoes/78678> [IF: 1.120]
8. **Ijaz Ahmad**, H. Lei, M. Waseem, H. Yang, D. Yang (2018) Harmonious Level Indexing for Ascertainment of Human-Water Relationship, *Environmental Earth Sciences*, 77(4): 1-9, <http://dx.doi.org/10.1007/s12665-018-7296-7> [IF: 1.435]
9. Zaman, M., M.N. Anjum, M. Usman, **Ijaz Ahmad**, et al. (2018) Enumerating the effects of climate change on water resources using GCMs scenarios at the Xin'anjiang Watershed, China, *WATER*, 10(10), 1256:1-32, <https://doi.org/10.3390/w10101296> [IF: 2.069]
10. Tayyab, M., **Ijaz Ahmad**, N. Sun, J.Z. Zhou, X. Dong (2018) Application of Integrated Artificial Neural Networks Based on Decomposition Methods to Predict Streamflow at Upper Indus Basin, Pakistan, *Atmosphere*, 9(12), 1-35, <https://doi.org/10.3390/atmos9120494> [IF: 1.704]
11. **Ijaz Ahmad**, D. Tang (2016) Multi-objective Linear Programming for Optimal Water Allocation Based on Satisfaction and Economic Criterion, *Arabian Journal for Science and Engineering*, 41(4): 1421-1433 <http://dx.doi.org/10.1007/s13369-015-1954-9> [IF: 1.092]
12. Ahsan, M., A.S. Shakir, F. Zhang, **Ijaz Ahmad** (2018) Spatiotemporal variability in hydro-meteorological time series data using Non-Parametric Tests over Hindu Kush, Himalayan and Karakoram Ranges in Pakistan, *Fresenius Environmental Bulletin*, 27(5A): 3666-3677 [IF: 0.673]

13. Tayyab, M., J.Z. Zhou, X. Dong, **Ijaz Ahmad**, N. Sun (2017) Rainfall-Runoff Modelling at Jinsha River Basin by Integrated Neural Network with Discrete Wavelet Transform, *Meteorology and Atmospheric Physics*, <https://doi.org/10.1007/s00703-017-0546-5> [IF: 1.356]
14. Zaman, M., S. Yuan, J. Liu, M. Usman, **Ijaz Ahmad**, et al. (2017) Quantifying the Effects of Climate Change on Precipitation and Temperature Patterns by using Non-Parametric Techniques, *Fresenius Environmental Bulletin*, 26(12): 7419-7431 [IF: 0.673]
15. Jalil, A., Y.P. Li, **Ijaz Ahmad**, K. Khan (2016) Water Quality Assessment with Varied Lake Depths by Using Multivariate Statistical Approach, *Asian Journal of Water, Environment and Pollution*, 13(2): 39-48. <http://dx.doi.org/10.3233/AJW-160015> [ESCI]
16. **Ijaz Ahmad**, D. Tang, T.F. Wang, M. Wang, B. Wagan (2015) Precipitation trends over time using Mann-Kendall and Spearman's rho tests in Swat River Basin, Pakistan, *Advances in Meteorology*, <http://dx.doi.org/10.1155/2015/431860> [IF: 1.645]
17. Zhang, J.X, D. Tang, **Ijaz Ahmad**, M. Wang (2015) River-Human Harmony Model: A Preliminary Study for River Basin Water Resources Management, *Current Science*, 109(6): 1130-1139. [IF: 0.883]
18. Wagan, B., Z. Zhang, S. Han, **Ijaz Ahmad**, A.T. Kabo-Bah (2015) Using the SPI to interpret spatial and temporal conditions of drought in China, *Outlook on AGRICULTURE*, 44(3):235-241. <http://dx.doi.org/10.5367/oa.2015.0217> [IF: 1.030]

#### **International Peer-Reviewed Conference Proceedings:**

1. **Ijaz Ahmad**, D. Tang, M. Wang, S. Hashim (2014) Trend Analysis on Precipitation Time Series Data in Munda Catchment, Pakistan, *Applied Mechanics and Materials*, 692:97-102, <http://dx.doi.org/10.4028/www.scientific.net/AMM.692.97>
2. Wang, M., D. Tang, **Ijaz Ahmad**, J. Zhang (2014) Assessment of Regional Water-Human Harmony Based on ANP-Entropy Model, *Applied Mechanics and Materials*, 692: 121-126, <http://dx.doi.org/10.4028/www.scientific.net/AMM.692.121>
3. Hashim, S., Y.B. Xie, I. Hashim, **Ijaz Ahmad** (2014) Urban River Pollution Control Based on Bacterial Technology, *Applied Mechanics and Materials*, 692: 127-132, <http://dx.doi.org/10.4028/www.scientific.net/AMM.692.127>
4. Tayyab, M., J.Z. Zhou, X.F., Zeng, **Ijaz Ahmad**, R. Adnan (2016) Application of Statistical Nonparametric Tests in Dongting Lake, China: 1961-2012, International Conference on Knowledge Engineering and Applications, Singapore, IEEE, <http://dx.doi.org/10.1109/ICKEA.2016.7803018>
5. Zaman, M., S. Yuan, J. Liu, **Ijaz Ahmad**, et al. (2017) Optimization of Mangla hydropower station, Pakistan using optimization techniques, In 2017 2nd International Conference on Mechatronics and Automation Technology, Melbourne, Australia. <http://dx.doi.org/10.1051/mateconf/201713602010>
6. Saifullah, M., **Ijaz Ahmad**, M. Zaman, Z. Li (2017) Impacts of hydro climatic variables trends on water resources of Yihe River Basin during the past 50 years. In: *International Conference on Hydropower – A Vital Source of Sustainable Energy for Pakistan*, CEWRE, UET, Lahore-Pakistan. [ISBN:978-969- 8670-06- 01](https://doi.org/10.1007/978-969-8670-06-01)
7. Raza, A., M. Usman, **Ijaz Ahmad** (2017) Risk of Indus Basin Water Transfer in Violation of Indus Basin Treaty. In: *International Conference on Hydropower – A Vital Source of Sustainable Energy for Pakistan*, CEWRE, UET, Lahore-Pakistan. [ISBN:978-969- 8670-06- 01](https://doi.org/10.1007/978-969-8670-06-01)

8. **Ijaz Ahmad**, M. Zaman, S. Yuan, J. Liu, et al. (2017) Optimization of Hydropower Potential at Xin'anjiang Station using PSO and GA Techniques. In: *International Conference on Hydropower – A Vital Source of Sustainable Energy for Pakistan*, CEWRE, UET, Lahore-Pakistan. [ISBN:978-969- 8670-06- 01](#)
9. Yaseen, M., **Ijaz Ahmad**, B. Nasir, M.I. Azam, et al. (2017) Evaluation of Suitable Design Flood Frequency Approaches for Hydropower Structures on the Mountainous Rivers (A Case Study of Upper Indus Basin). In: *International Conference on Hydropower – A Vital Source of Sustainable Energy for Pakistan*, CEWRE, UET, Lahore-Pakistan. [ISBN:978-969- 8670-06- 01](#)
10. Farid, R., **Ijaz Ahmad** (2017) Design of Upstream Overflow Cofferdam of Patrind Hydropower Project. In: *International Conference on Hydropower – A Vital Source of Sustainable Energy for Pakistan*, CEWRE, UET, Lahore-Pakistan. [ISBN:978-969-8670-06- 01](#)
11. Shakoor, A., Z.M. Khan, H.U. Farid, **Ijaz Ahmad**, et al. (2018) Delineation of Regional Groundwater Vulnerability and Determining its Impact on Agricultural Productivity, *Journal of Global Innovations in Agricultural and Social Sciences*, 6(2):47-53.
12. Shakoor, A., Z.M. Khan, H.U. Farid, M. Sultan, A.A. Khan, **Ijaz Ahmad** and M. Azmat (2018) Groundwater Vulnerability Mapping in Faisalabad District using GIS based Drastic Model, *MATEC Web of Conferences* 246, 01001, <https://doi.org/10.1051/mateconf/201824601001>

## **COMPUTER SKILLS**

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- HEC-HMS 3.5.0 (Hydraulic Engineering Centre's Hydrologic Modelling Simulation)
- HEC-RAS 4.0.0 (Hydraulic Engineering Centre's River Analysis System)
- MODFLOW 5.3.0 (A Simulation System for Modelling Groundwater flow and Pollution)
- ARC GIS; Version: 10.2
- HEC-Geo-HMS 4.2
- AutoCAD (2008): Practical Experience of working on AutoCAD (2008) software
- MATLAB computer language

## **AFFILIATED REVIEWER TO INTERNATIONAL JOURNALS (SCI)**

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- Environmental Pollution (Elsevier)
- Water Resources Management (Springer)
- Environmental Earth Sciences (Springer)
- Environmental Pollution (Elsevier)
- Sustainable Water Resources Management (Springer)
- Earth Systems and Environment (Springer)
- Journal of Arid Land (Springer)
- Scientia Iranica
- Current Science
- Journal of Hydrologic Engineering (ASCE)

## **ADDITIONAL CERTIFICATIONS/SKILLS**

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### **Membership of Professional Societies:**

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| ▪ Pakistan Engineering Council (PEC)         | AGRI-2739 |
| ▪ International Water Association (IWA)      | 1068697   |
| ▪ American Society of Civil Engineers (ASCE) | 10167035  |