University Academic Curriculum Vitae

Personal information Name: Pranav Dhawan

Education since leaving school

- 2009 – 2013, Bachelor of Technology in Mechanical and Automation Engineering, Amity University, Uttar Pradesh, India
- 2014 – 2016, Master of Science in Hydroinformatics and Water Management, Erasmus Mundus EuroAquae, Consortium of Universities: Brandenburg University of Technology, Cottbus (Germany); University of Newcastle upon Tyne (U.K.); University of Nice-Sophia Antipolis (France), Technical University of Catalonia (Spain); Budapest University of Technology and Economics (Hungary)
- 2022 – 2025, PhD in Sustainable Energy and Technologies, Free University of Bozen-Bolzano (Thesis submitted) – "Optimising the Water–Energy Nexus: Data-to-Decision Methodologies for Meteorological Forcing and Hybrid Renewable Integration"

Present appointment

- Title of appointment: Tecnologo
- Start of appointment: February 2026
- Employer: Free University of Bozen-Bolzano, Italy

Professional experience

From / to	Job title	Name of academic Institution	Academic level	responsibilities
April 2021 – October 2022	Assistant Research	Free University of Bozen-Bolzano, Italy		• Developed a high-resolution (250m), hourly gridded climate dataset for Trentino-Alto Adige region of Italy. • Applied univariate and multivariate bias correction methods to correct biases in future climate weather variables using observed data.
August 2020 - March 2021	Consultant (Remote Sensing and GIS Expert)	National Institute of Disaster Management, Ministry of Home Affairs, Government of India (New Delhi, India)		• Contributed to a project on flood management in India, analyzing gaps in existing flood forecasting systems and policies and Recommended policy improvements based on analysis of current flood management and forecasting frameworks. • Assessed flood extent using satellite imagery and identified factors contributing to increased urban, riverine, and coastal flooding (e.g., reduced drainage, encroachment, erosion).
January 2018 – November 2019	Water Resources Engineer	DHI (India) Water and Environment Pvt. Ltd. (New Delhi, India)		**a) Design of Flood Protection works along Sukhbhadar River in Dholera Special Investment Region**

				(DSIR), Gujarat (State Funded) – The objective of this project is to prepare detailed engineering design for river training works along the Sukhbhadar river as a basis of long term mitigation strategy with sustainable solutions. Project Manager: I was responsible for the overall running of the project including work plans, schedules, budgets and resource allocation for the entire project. I was also responsible for the setting up of meetings with the clients and timely delivery of the reports. Apart from the management of the project, I was also responsible for the technical aspect of the project which deals with modelling of the river and suggesting mitigation strategies for effective flood protection works. **b. Climate Change Decision Support System(DSS) for Samrat Ashok Sagar Dam, Bhopal (UNDP funded)** – This project on DSS aims at enhancing the decision making capabilities of the Madhya Pradesh Water Resource Department (MPWRD) and other related by assessing the impacts of climate change on the reservoir system with the view of optimizing the reservoir water balance and managing water releases for competing demands in the command area downstream of the dam. It will further help MPWRD to prepare for and adapt to drought and flood situations through simulation of scenarios and adaptation measures. Deputy Project Manager – I was responsible for the downscaling of the climate change models to reservoir level and to predict the climate vulnerability for the future based on those models. I was also responsible for the overall running of the project by coordinating between the teams in Bhopal and New Delhi and the client - UNDP. **c. Quantification of losses suffered by Jammu and Kashmir (J&K) on account of Indus Water Treaty (IWT) (State funded)** – to study how has IWT, which has been in effect for around

				60 years, impacted the state of J&K by studying the effects of IWT on the hydro power potential, irrigation potential and flood risk assessment and to quantify the losses by comparing the scenario with and without the treaty. Hydrologist: Responsible for the overall assessment of Hydro Power Potential with and without the Treaty and the losses suffered by the state due to the Treaty **d. Strengthening Smart Water Management and Urban Climate Change Resilience in Tamil Nadu, India (ADB funded)** – The main aim of this project is to conduct an advanced basin wide study of water related disaster risks considering climate change in selected vulnerable coastal towns in Tamil Nadu resulting in strategic and actionable recommendations to strengthen water related infrastructure and management (drinking water supply, sewage collection, wastewater treatment, storm water drainage, flood management, early warning systems) to increase climate resilience. Modeler: Run the baseline scenario as well as scenario with Climate Change for the entire basin. To incorporate MIKE HYDRO RIVER, MIKE 21C and MIKE URBAN to understand the overland flooding of the catchment areas, suggest mitigation measures for the same and to model the mitigation measures and to understand the effect of mitigation measures.
September 2017 – December 2017	Research Assistant	Indian Institute of Technology (I.I.T), Roorkee (Roorkee, India)		Working as a Project Associate on a project "Real Time Inflow Forecasting System for Tehri Dam" by IIT Roorkee and Tehri Hydro Development Corporation (THDC) India Ltd. Usage of Mike 11, HEC-HMS, Arc GIS for the flood forecasting of the Tehri Dam with special emphasis of snowmelt in the catchment
April 2016 – September 2017	Research Analyst	International Commission on Irrigation and Drainage (I.C.I.D) New Delhi		Responsible for managing side events during the Second World Irrigation Forum which was held in Chiang Mai, Thailand in 2016. • Worked on projects

				directly involving Government of India. • Compilation of database and ICID Weekly E-Bulletin which is sent to more than 35 countries related to agriculture, irrigation, floods and droughts • Writing of minutes and post conference publications for ICID Foundation Day as well as India Water Week 2016 • Procurement of T&P items for ICID Central Office
June 2015 – September 2015	Graduate Intern	World Meteorological Organization, United Nations, Geneva		Worked in the Hydrological Forecasting and Water Resource Department on Associated Programme on Flood Management (APFM) • Worked on updating of tools (short technical series by WMO on focused topics) which were published by APFM. • Support staff for the Advisory Committee and Management Committee meeting in Geneva. • Creation of database for the all publication and archives.

Experience in academic teaching

- Teaching assistant for the course - Hydropower Plants, as part of Master in Energy Engineering, Faculty of Engineering, Free University of Bozen-Bolzano (2024-2025)
- Master Thesis Supervision – 2 students
- Ph.D. Student Representative of the Ph.D. Programme - Sustainable Energy and Technologies, Free University of Bozen-Bolzano, Italy

Training Conducted

- Delivered hands-on training on MIKE HYDRO to master's and PhD students at IIT Roorkee.
- Led professional training on MIKE FLOOD 3-way coupling (MIKE HYDRO RIVER, MIKE 21 FM, MIKE URBAN) for state government officials at the Karnataka State Natural Disaster Monitoring Centre.
- Conducted training on MIKE FLOOD 2-way coupling (MIKE HYDRO RIVER & MIKE 21 FM) in Sardar Vallabhbhai National Institute of Technology (Surat, Gujarat), Assam Engineering College (Guwahati, Assam) and National Institute of Technology, Kurukshetra for postgraduate students, researchers and academic staff.

Memberships

- European Geosciences Union
- Institute of Civil Engineers (U.K.)

Research and scholarships

Date granted	Award Holder(s)	Funding Body	Title	Amount received
November 2022	Pranav Dhawan	Free University of Bozen-Bolzano	PhD Scholarship	€ 51,000
October 2023	Pranav Dhawan	AMI Hydropower Foundation	Registration Fees for Conference	€1,470

Publications

Published

- *Dhawan, P.*, Dalla Torre, D., Niazkar, M., Kaffas, K., Larcher, M., Righetti,

M. and Menapace, A., 2024. A comprehensive comparison of bias correction methods in climate model simulations: Application on ERA5-Land across different temporal resolutions. Heliyon, 10(23). https://doi.org/10.1016/j.heliyon.2024.e40352

- *Dhawan, P.*, Dalla Torre, D., Zanfei, A., Menapace, A., Larcher, M. and Righetti, M., 2023. Assessment of ERA5-Land data in medium-term drinking water demand modelling with deep learning. Water, 15(8), p.1495. https://doi.org/10.3390/w15081495
- Menapace, A., *Dhawan, P.*, Dalla Torre, D., Kaffas, K., Crespi, A., Larcher, M., Righetti, M. and Cannon, A.J., 2025. Review of bias correction methods for climate model outputs in hydrology. Journal of Hydrology, p.133213. https://doi.org/10.1016/j.jhydrol.2025.133213
- Margoni, M., *Dhawan, P.,* Righetti, M., Sustainable Energy Management through Optimized Hybrid Hydro-Solar Systems, Energies (2025)
- Niazkar, M., Menapace, A., Brentan, B., Piraei, R., Jimenez, D., *Dhawan, P.* and Righetti, M., 2024. Applications of XGBoost in water resources engineering: A systematic literature review (Dec 2018–May 2023). Environmental Modelling & Software, 174, p.105971. https://doi.org/10.1016/j.envsoft.2024.105971
- Niazkar, M., Piraei, R., Menapace, A., *Dhawan, P.*, Torre, D.D., Larcher, M. and Righetti, M., 2024. Bias correction of ERA5-Land temperature data using standalone and ensemble machine learning models: a case of northern Italy. Journal of Water and Climate Change, 15(1), pp.271-283. https://doi.org/10.2166/wcc.2023.669

Submitted

- *Dhawan, P.,* Herrera, M., Puchkova, A., Righetti, M., Integrating predictive analytics and reinforcement learning for sustainable hydropower generation, Environmental Modelling & Software

Publications about the applicant

APFM Flood Management News, Newsletter 36-June 2015 (https://www.floodmanagement.info/wpcontent/uploads/Newsletter36_LR.pdf)

Further data (Conference Proceedings)

- **Dhawan, P.**, Righetti, M., Puchkova, A., Herrera, M., Formulation of an optimization framework for pumped storage with floating photovoltaics integration: Towards smart hydropower, 13th World Congress on Water Resources and Environment (EWRA 2025), Palermo, Italy, 24 - 28 June 2025
- **Dhawan, P.**, Dalla Torre, D., Menapace, A., and Righetti, M.: Floating solar power potential for the Alto Adige region of Italy, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-6199, https://doi.org/10.5194/egusphere-egu24-6199
- **Dhawan, P.**, Dalla Torre, D., Menapace, A., Majone, B., and Righetti, M.: High-resolution gridded dataset of precipitation and temperature for Trentino-Alto Adige, EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-11499, https://doi.org/10.5194/egusphere-egu23-11499
- Menapace, A., **Dhawan, P.**, Dalla Torre, D., Larcher, M., and Righetti, M.: Analysis of the statistical bias correction of ERA5-Land on different time aggregations in Trentino-Alto Adige, EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-15537, https://doi.org/10.5194/egusphere-egu23-15537

Language competence

Native Language: Hindi

English: C1 from Free University of Bozen-Bolzano
German: Goethe certificate C1 from Goethe Institute, New Delhi (29th December 2010)
Italian: A2
French: A1

Digital Skills

Microsoft Office Suite
Text processing: Word, LaTeX
Programming: R/Rstudio, Python
Modeling: HEC-HMS, HEC-RAS, MIKE HYDRO, MIKE FLOOD, MIKE-URBAN
Mapping Tools: ArcGIS, QGIS