



Name	Biswa Bhattacharya
Year of birth	1962
Nationality	Indian
Present position	Senior Lecturer in Hydroinformatics
Years with firm	From 2005 – present



EDUCATION

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|------|---|--|
| 2005 | - | PhD degree from Delft University of Technology and UNESCO-IHE Institute of Water Education, The Netherlands. |
| 2000 | - | Master of Science (distinction), UNESCO-IHE Institute of Water Education, The Netherlands |
| 1998 | - | Master of Engineering (distinction), UNESCO-IHE Institute of Water Education, The Netherlands |
| 1985 | - | Bachelor of Engineering in Civil Engineering from Bengal Engineering and Science University, India. |
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EMPLOYMENT RECORD

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|----------------|---|--|
| 2005 - present | - | Senior Lecturer in Hydroinformatics, Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Delft, The Netherlands. |
| 2000 - 2005 | - | Research Fellow, Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Delft, The Netherlands. |
| 1987-1999 | - | Senior Scientific Officer, Ministry of Surface Transport, India (initially as Assistant Engineer (Hydraulic Research)) |
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KEY QUALIFICATIONS

Biswa Bhattacharya has a PhD degree from Delft University of Technology and UNESCO-IHE Institute for Water Education. The title of his PhD thesis is 'Learning from data for aquatic and geotechnical environment'. He also holds an MSc degree in Hydroinformatics (with Distinction) from UNESCO-IHE Institute for Water Education and a Bachelor of Engineering (Civil) from Bengal Engineering and Science University, India. Prior to his PhD he was engaged in numerical modelling of river engineering in a number of research projects. Subsequently, he worked on the so-called hybrid modelling where the benefits of numerical and data-driven modelling are combined. His research interests include flood risk management, flood mapping, coastal flooding, coastal modelling using numerical, data-driven and hybrid modelling.

MAIN DISCIPLINE / SPECIALISATION

Hydroinformatics, flood risk management

EXPERIENCE RECORD

EXPERIENCE in CONSULTANCY, PROJECT ASSIGNMENTS and EDUCATION

**Teaching and Education**

Programme Coordinator of Hydroinformatics (since 2007)

Teaching

- Flood risk management
- Hydrological modelling
- Flood modelling for management (online course)
- Data-driven modelling
- Software engineering

Projects

- Coordinator, Erasmus Mundus Masters Programme in Flood Risk Management. This programme has been funded by EU in 2010 for setting up a new MSc programme on Flood Risk Management that is planned to run from September 2011.
- Project Leader, MorphoFlood on flood risk management and morphological assessment in Bangladesh (Dutch funded)
- EU project FLOODsite (2004-2009)
- EU project TenCompetence (2006-2009)
- UNESCO sponsored project Flood Management Educational Platform
- DelftCluster research project Morphodynamics of the North Sea and Coastal Defences (2005-2009)
- UNESCO-IHE's PoWER supported project PoWERFlood
- DelftCluster research project Data mining, knowledge discovery and data-driven modeling (2000-2004)
- DelftCluster research project Sedimentation model of the port of Rotterdam (2000-2003)
- DelftCluster research project Semi-automatic interpretation of cone penetration testing

PUBLICATIONS**THESIS**

Bhattacharya, B. (2005). Learning from data for aquatic and geotechnical environments, Balkema Pub., Rotterdam, The Netherlands.

CHAPTERS in BOOKS

Bhattacharya, B., Diebel, I.K., Karstens, S.A.M., and Solomatine, D.P. (2006). Neural networks in sedimentation modelling for the approach channel of the port of Rotterdam. J. Maa, L. Sanford, and D. Schoellhamer (eds.), Estuarine and coastal fine sediment dynamics, (Marine Sciences, Vol. 8), Elsevier, 465-480.

JOURNAL PAPERS

Bhattacharya, B., Price, R.K., and Solomatine D.P. (2007). Machine learning approach to modelling sediment transport, J. of Hydraulic Engg., ASCE, 133(4), 440-450.

Price, R.K., Bhattacharya, B., Popescu, I., and Jonoski, A. (2007). Flood modelling for management: UNESCO-IHE's online course in hydrology, Bulletin of World Meteorological Organisation, 56(2), 102-106.

Bhattacharya, B., and Solomatine, D.P. (2006). Machine learning in sedimentation modelling, Neural Networks, 19(2), 208-214.

Bhattacharya, B., and Solomatine, D.P. (2006). Machine learning in soil classification,



Neural Networks, 19(2), 186-195.

Bhattacharya, B., and Solomatine, D.P. (2005). Neural networks and M5 model trees in modelling water level-discharge relationship, *NeuroComputing J.*, 63, 381-396.

Bhattacharya, B., Price, R.K., and Solomatine, D.P. (2005). Data-driven modelling in the context of sediment transport, *Physics and Chemistry of the Earth*, 30 (4-5), 297-302.

Bhattacharya, B., Lobbrecht, A.H., and Solomatine D.P. (2003). Neural networks and reinforcement learning in control of water systems, *J. of Water Resources Planning and Management, ASCE*, 129(6), 458-465.

CONFERENCE PROCEEDINGS

Pontien, N. and Bhattacharya, B. (2011). Hydrological modelling in data-scarce catchments - the example of Ruvubu River Basin in Burundi. *Proc. of IAHR Congress, Brisbane, Australia.*

Bhattacharya, B., Sewagudde, S., van Kessel, T. and Solomatine, D.P. (2011). A hybrid approach in combining numerical and data-driven models in modelling fine sediment transport. *Proc. of IAHR Congress, Brisbane, Australia.*

Bhattacharya, B. and Pontien, N. (2011). Flood forecasting in Ruvubu River Basin using TRMM data. *European Geophysical Union Assembly, Vienna.*

Bhattacharya, B., van Kessel, T. and Solomatine, D.P. (2011). Combining numerical models and computational intelligence techniques in sedimentation prediction. *European Geophysical Union Assembly, Vienna.*

Bhattacharya, B., van Kessel, T. and Solomatine, D.P. (2010). Surrogate modelling of suspended sediment concentration. *Proc. of Hydroinformatics Conf. 2010, Tianjin, China.*

Bhattacharya, B. (2009). A Fuzzy Approach in Curve Number Hydrology to Reduce Uncertainty. *Proc of Hydroinformatics Conf., Chile.*

Poepscu, I., Jonoski, A., Bhattacharya, B., And Keuls, C. (2009). On-Line Competence Based Learning in Hydroinformatics at UNESCO-IHE. *Proc of Hydroinformatics Conf., Chile.*

Bhattacharya, B., (2008). Methods and their limitations in predicting sediment loads in rivers, *Proc. of the HydroPredict Conf., 2008, Prague.*

Bhattacharya, B. (2008). Predicting suspended sediment concentration at Noordwijk, *Proc. of Netherlands Centre for Coastal Research Conf., 2008, Delft, The Netherlands.*

Bhattacharya, B., Price, R.K., and Solomatine D.P. (2006). An approach to assess uncertainty of sediment transport models. *Proc. 7th Int Conf. on Hydroinformatics, Nice, Research Publishing, 1261-1268.*

Bhattacharya, B., and Solomatine, D.P. (2006). Improving empirical models with machine learning, *Proc. of Int. Joint Conf. on Neural Networks, Vancouver, Canada.*

Bhattacharya, B., Price, R.K., and Solomatine, D.P. (2005). An improvement of the sediment transport model of Engelund and Hansen, *Proc. of XXXIth IAHR Congress, Seoul, South Korea.*

Bhattacharya, B., and Solomatine, D.P. (2005). Modelling harbour sedimentation using ANN and M5 model trees, *Proc. of Int. Joint Conf. on Neural Networks, Montreal, Canada.*

Bhattacharya, B., and Solomatine, D.P. (2005). Machine learning in soil classification, *Proc. of Int. Joint Conf. on Neural Networks, Montreal, Canada.*

Bhattacharya, B., Deibel, I.K., Price, R.K., and Solomatine, D.P. (2005). Modelling harbour sedimentation: new paradigms, *Int. Conf. on Port-Maritime Development and*



Innovation, Rotterdam, The Netherlands.

Bhattacharya, B., Solomatine, D.P. (2005). A data-driven approach to the assessment of sedimentation in coastal areas, Proc. of Netherlands Centre for Coastal Research.

Solomatine, D.P., Bhattacharya, B. ; Shrestha, D.L. (2005). Data-driven modelling vs. machine learning in flood forecasting, European Geophysical Union, Vienna.

Bhattacharya, B., Price, R.K., and Solomatine, D.P. (2004). A data mining approach to modelling sediment transport, Proc. of 6th Int. Conf. of Hydroinformatics, June, 2004, Singapore.

Bhattacharya, B., and Solomatine, D.P. (2003). An algorithm for clustering and classification of series data with constraint of contiguity, Proc. of 3rd Int. Conf. on Hybrid and Intelligent Systems, Melbourne, Australia.

Bhattacharya, B., Shrestha, D.L., Solomatine, D.P. (2003) Neural networks in reconstructing missing wave data in sedimentation modelling, Proc. of XXXth IAHR Congress, Thessaloniki, Greece, August, 2003.

Bhattacharya, B., and Solomatine, D.P. (2003). Neural networks and M5 model trees in modelling water level-discharge relationship for an Indian river, in: M. Verleysen, ed, Proc. of 11th European Symposium on Artificial Neural Network, Bruges, Belgium, d-side, Evere, Belgium, 407-412.

Bhattacharya, B., and Buraimo, C. (2003). Data-driven modelling in the context of sediment transport, Proc. of 3rd Conf. of Netherlands Centre for River Studies, Roermond, The Netherlands.

Bhattacharya, B., and Solomatine, D.P. (2002). Application of artificial neural networks and M5 model trees to modelling stage-discharge relationship, in: B.S. Wu, Z.Y. Wang, G.Q. Wang, G.H. Huang, H.W. Fang and J.C. Huang, eds., Proc. of 2nd Int. Symposium on Flood Defence, Beijing, China Science Press New York Ltd., New York, 1029-1036.

Bhattacharya, B., Lobbrecht, A.H., and Solomatine, D.P. (2002). Control of water level of regional water systems using reinforcement learning, Proc. of 5th Int. Conf. of Hydroinformatics, Cardiff, UK.

Bhattacharya, B., and Solomatine, D.P. (2000). Application of artificial neural network in stage discharge relationship, Proc. of 4th Int. Conf. on Hydroinformatics (in CDRom), Iowa, USA.

Bhattacharya, B. and Chaudhuri, B. (1994) Flux computation with digital computers, Proc. of the Conf. of Central Board of Irrigation and Power, India, Calcutta, India.

Bhattacharya, B. and Chaudhuri, B. (1993) Scour around spurs with special reference to the Hugli estuary, Proc. of Conf. of Central Board of Irrigation and Power, India, Varanasi, India.

Bhattacharya, B. and Guha, D. (1992) Sedimentation in the Hugli estuary, Proc. of Conf. on Productivity Constraints of Indian Assoc. of Agricultural Scientists, Calcutta, India, June, 1992.

