

Curriculum Vitae

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Abhishek Kumar Pandey

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Educational Details

❖ **Ph.D. (Civil Engineering)**

Indian Institute of Technology Gandhinagar, India

Duration: July, 2016 – May, 2022

Thesis title: 3D CFD modeling of the Open Channel Junction Flow on Fixed and Mobile Beds

❖ **B. Tech. (Civil Engineering)**

National Institute of Technology Patna, India

Duration: July, 2012 – April, 2016

Professional Background

❖ **Assistant Professor**

IIT (ISM) Dhanbad, Civil Engineering Department

Duration: 20th October, 2023 - Present

❖ **Institute Post-doctoral fellow**

IIT Bombay, Civil Engineering Department

Duration: 19th April 2023 – 04th October 2023

❖ **Post-doctoral fellow**

IIT Gandhinagar, Civil Engineering Department

Duration: 03rd February 2022 – 02nd February 2023

Research Interests

- River Engineering
- Pluvial and Fluvial Flood modelling
- Sediment transport
- Flood-infrastructure interactions
- Nature-based solutions for flood mitigation
- LES Modeling

Research Expertise

- Experimental Hydraulics
- 1D/2D/3D numerical Simulations of flood modelling and hydro-morphodynamics of rivers/channels/drainage networks
- Scour modelling
- Coding/Software skill: MATLAB, ANSYS Fluent, FLOW-3D, HEC-RAS

Teaching Experience

- CEC502: Research Methodology and Statistics [PG class, IIT (ISM) Dhanbad, 2023-2024, Winter session]
- ES212: Fluid Mechanics [B.Tech. class, IIT Gandhinagar as a GTF, 2018-2019, Winter session]
- CEC206: Water Resources Engineering [UG class, IIT (ISM) Dhanbad, 2024-2025, Winter session]
- NCES101: Engineering Graphics [UG class, IIT (ISM) Dhanbad, 2024-2025, Summer and Winter session]

Research Guidance

❖ Ph.D. Scholar

| Scholar Name | Research Field | Status |
|----------------|-------------------|-----------------------|
| Puja Kumari | River Engineering | January, 2024-Present |
| Rauminsh Kumar | River Engineering | July, 2024-Present |

❖ M. Tech. Scholar

| Scholar Name | Research Field | Status |
|----------------|--|-----------------------|
| Abhishek Kumar | Flooding impacts on Infrastructures | January, 2024-Present |
| Shubham Mishra | Non-Newtonian Fluid Dynamics (Tentative) | July, 2024-Present |

Achievements and Awards

- Paper titled "3D Numerical Simulations of the Bed Evolution at an Open-Channel Junction in Flood Conditions" was featured in the **Editor's Choice in ASCE's Journal of Irrigation and Drainage Engineering** (2024)
- Paper titled "Flow Dynamics and Pollutant Transport at an Artificial Right-Angled Open-Channel Junction with a Deformed Bed" was featured in the **Editor's Choice in ASCE's Journal of Hydraulic Engineering** (2023)
- Recipient of the SERB **International Travel Grant** (2022)
- Prime Minister Research Fellowship (**PMRF**) recipient (2018-2021)
- Graduate Trainee Fellow (**GTF**) at IIT Gandhinagar (2019, Fluid Mechanics)
- Selected as **Start-Early Ph.D. candidate** in Civil Engineering Department, IIT Gandhinagar (2016). This fellowship provides additional 10,000 INR above the MHRD fellowship.
- **MHRD Fellowship** for PhD (2016-2021)

Journal Reviewer

- Scientific Data
- Physics of Fluids
- Acta Geophysica
- Journal of Irrigation and Drainage Engineering
- Water Resources Management
- ISH Journal of Hydraulic Engineering

Journal Publications

7. Pandey, A. K., & Mohapatra, P. K. (2024). 3D Numerical Simulations of the Bed Evolutions at an Open Channel Junction For the Flood Conditions. *Journal of Irrigation and Drainage Engineering*, 150 (3), 04024007. <https://doi.org/10.1061/JIDEDH.IRENG-10321>
6. Pandey, A. K., & Mohapatra, P. K. (2023). Flow Dynamics and Pollutant Transport at an Artificial Right-Angled Open-Channel Junction with a Deformed Bed. *Journal of Hydraulic Engineering*, 149(4), 04023006. <https://doi.org/10.1061/JHEND8.HYENG-13424>.
5. Pandey, A. K., & Mohapatra, P. K. (2022). Three-dimensional numerical simulation of the flood-wave propagation at a combining open-channel junction. *Journal of Irrigation and Drainage Engineering*, 148(11), 04022038. [https://doi.org/10.1061/\(ASCE\)IR.1943-4774.0001713](https://doi.org/10.1061/(ASCE)IR.1943-4774.0001713).
4. Pandey, A. K., & Mohapatra, P. K. (2022). Discussion of “Mahmodinia, S., & Javan, M.(2021). Vortical structures, entrainment and mixing process in the lateral discharge of the gravity current. *Environmental Fluid Mechanics*, 21 (5), 1035–1067”. *Environmental Fluid Mechanics*, 22(4), 1025-1033. <https://doi.org/10.1007/s10652-022-09859-0>.
3. Pandey, A. K., & Mohapatra, P. K. (2022). Large eddy simulation of sediment transport in high flow intensity by discrete particle method By B. Zhang; B., Wu; S., Li and Y., Shi, *Journal of Hydraulic Research*. 59 (4), 2020, 605-620, <https://doi.org/10.1080/00221686.2020.1818306>. *Journal of Hydraulic Research*, 60(1), 182-183. <https://doi.org/10.1080/00221686.2021.1968965>
2. Pandey, A. K., & Mohapatra, P. K. (2021). Reduction of the Flow Separation Zone at Combining Open-Channel Junction by Applying Alternate Suction and Blowing. *Journal of Irrigation and Drainage Engineering*, 147(10), 06021011. [https://doi.org/10.1061/\(ASCE\)IR.1943-4774.0001611](https://doi.org/10.1061/(ASCE)IR.1943-4774.0001611)
1. Pandey, A. K., Mohapatra, P. K., Jain, V., & Bhatia, U. (2020). Studying subcritical opposing channel flows. *Journal of Applied Water Engineering and Research*, 8(4), 262- 276. <https://doi.org/10.1080/23249676.2020.1787247>

Conference Proceedings

3. Pandey, A. K., & Mohapatra, P. K. (2022). Performances of Different Turbulence Models in Predicting Important Characteristics of Steady Flow in Combined Open Channel Junction. 39th IAHR World Congress-From Snow To Sea, 3848-3857, Granada, Spain. <https://doi.10.3850/IAHR-39WC2521711920221565>

2. Pandey, A. K., Mohapatra, P. K., & Jain, V. (2020). Equivalent Manning's Roughness in Combining Open Channel Junction Flows. World Environmental and Water Resources Congress 2020: Hydraulics, Waterways, and Water Distribution Systems Analysis, 99-107. <https://doi.org/10.1061/9780784482971.010>

1. Pandey, A. K., and Mohapatra, P. K. (2019). 3D simulation of flow in a right angled channel junction with a pit. In World Environmental and Water Resources Congress 2019: Hydraulics, Waterways, and Water Distribution Systems Analysis, 144-158. <https://doi.org/10.1061/9780784482353.014>

Book Chapter

Pandey, A.K., Mohapatra, P.K. & Jain, V. (2021). Studying the channel confluence hydraulics using eddy viscosity models and Reynolds stress model. In Recent Advances in Computational Mechanics and Simulations (pp. 295-305). Springer, Singapore. https://doi.org/10.1007/978-981-15-8315-5_26

RnD Projects

Title: “Flood Loading Mechanism on Building in the Presence of Adaptation Strategies for Clear and Sediment-laden Dam-break Conditions”

Role: PI

Funding: Internal, IIT (ISM) Dhanbad

Amount: 200000 INR.

Duration: 2 years.

Consultancy Projects

Title: “Hydrological Study for the Gare Palma Sector-I Coal Mine, Tamnar, Raigarh (CG)”

Role: Co-CI

Funding: Jindal Power Limited, Raigarh

Amount: 8977777 INR

Duration: 6 months

Administrative Responsibilities

- Time-table Co-Ordinator, Civil Engineering Department
- DPGC member