JIGYANSU TRIPATHI

M.tech in Water Engineering and Management, IIT Kharagpur

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EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	M.TECH	IIT Kharagpur	7.18 / 10
2022	B.TECH(AGRICULTURAL ENGINEERING)	Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya,(Madhya Pradesh)	7.2 / 10
2018	Higher Secondary School Certificate Examination	Saraswati Higher Secondary School, Satna (Madhya Pradesh))	72.8%
2016	High School Certificate Examination	Saraswati Higher Secondary School, Satna (Madhya Pradesh)	85.6%

INTERNSHIPS

Summer Training: One Month Training in Central Farm Machinery Training and Testing Institute, Bhopal (Madhya Pradesh).

Job Role: Engineer Trainee(A1 Level).   **Year: 2022**
• Completed training on operation, maintenance, and repair of tractors and agricultural machinery.
• Gained hands-on experience in the maintenance of a 5 hp single-cylinder diesel engine.
• Certified by the Ministry of Agriculture and Farmers Welfare, Government of India.

Performance Evaluation of the Geonkhali Water Treatment Plant: A Data-Driven Analysis of Seasonal and Tidal Impacts on Hooghly River Water Quality,

Haldia Water Services Pvt. Ltd., Geonkhali (West Bengal).

Job Role: Research Intern (Water Quality &Data Analytics)   **Year 2025**
• Conducted performance evaluation of the Geonkhali WTP using four years of operational water quality data.
• Developed an interactive Tableau/Python-based dashboard to visualise seasonal and tidal impacts on river and treated water quality.

PROJECTS

Hydraulic Simulation and Pressure Management Framework for Water Distribution Networks Using Python and EPANET   Year: 2025-Present

• Developed a hydraulic modeling framework integrating Python with EPANET for simulation-based analysis of water distribution networks.
• Will be designing and testing pressure management strategies (PRVs, pump operations, demand variations) to enhance service reliability.
• Planning to develop Python scripts for automated scenario generation and result analysis in hydraulic simulations.
• Aiming to conduct a case study on a medium-scale WDN to evaluate optimization in pressure distribution and leakage reduction.

Developed an Automated Irrigation System   Year: 2025-Present

• Designed and implemented an embedded system for automated irrigation using Arduino as the microcontroller.
• Automated irrigation based on real-time soil moisture readings to optimize water usage and minimize waste.
• Integrated a soil moisture sensor to monitor moisture levels and trigger a relay module to activate the water pump.

Climate Visibility Forecasting using Machine Learning   Year: 2025-2026

• Developed a time-series forecasting model to predict climate visibility using historical datasets (NOAA/IMD weather data).
• Implemented preprocessing pipelines for handling missing values, seasonal variations, and trend decomposition.
• Trained models using ARIMA, Prophet, and LSTM to capture temporal dependencies and improve forecast accuracy.
• Deployed the solution as a REST API with FastAPI, containerized using Docker, and hosted on AWS/GCP Cloud Run for real-time predictions.

SKILLS AND EXPERTISE

• **Programming Languages** : Python | HTML | SQL
• **Machine Learning &AI:** Regression | SVM | Clustering | Decision Trees | Ensemble (Random Forest) | Bagging &Boosting | Time Series (ARIMA, LSTM)
• **Data Tools&Visualization:** Pandas | NumPy | Scikit-learn | Matplotlib | Seaborn | Bokeh | Plotly | Tableau | Power BI,
• **Software:** QGIS | EPANET | Visual Studio Code | Canva Pro | WaterGems | AutoCad | WEAP | Hec-Ras | HECHMS | Solid Work
• **Miscellaneous** :MS Excel | MS Word | MS PowerPoint
• **Soft skills** : Problem Solving | Analytical and Critical Thinking | Adaptability | Logical Aptitude | Creativity | Data Analytics | Technical Report Writing

COURSEWORK INFORMATION

Geo-Informatics lab (QGIS) | Planning and design of water engineering facilities | Environmental hydrology and hydraulics | Sectoral water demand and distribution | Geogenic water pollution and treatment | Wastewater engineering | River Basin Planning and Management | Water Engineering Laboratory | Sustainable Engineering and Circular Economy | Fate and Transport Engineering | Climate Impact on Water Resources | Disaster management

CERTIFICATIONS

• Data Analytics Job Simulation | Deloitte • Data Science and Machine Learning Bootcamp | Udemy • Certificate of Participation –Environment and Sustainability Quiz | BIS

COMPETITION/CONFERENCE

Secured All India Rank 125in GATE (AG) 2024.

POSITIONS OF RESPONSIBILITY

Teaching Assistant, Engineering Drawing (Handled 209 Students),   Year: 2025-Present

• Assisted in conducting Engineering Drawing classes for 209 students, ensuring clarity in concepts and quality in assessments.

Placement Coordinator School of Water Resources, IIT Kharagpur   Year: 2025-2026

• Coordinated campus placement activities, acting as the liaison between recruiters and students to ensure smooth execution of the recruitment process.

EXTRA CURRICULAR ACTIVITIES

• **Technology**: Successfully completed the "Online Test for Role of Statistics in Our Society" organized by the Department of Statistics, Mahendra Arts &Science College, Tamil Nadu.   **Year: 2020**
• **Sports** : Secured 2nd position in Chess competition during undergraduate college.   **Year: 2018**
• **Social-Cultural** : Successfully cleared the Akhil Bharatiya Sanskriti Gyan Pariksha, showcasing exceptional Knowledge and awareness of Indian culture and heritage, and was honored with this achievement four times in recognition of consistent excellence. • Achieved 3rd prize in a district-level essay writing competition, reflecting strong research and writing abilities.

!Self declared by the student, CDC could not verify the relevant documents