

# Debajyoti Roy

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## EDUCATION

National Institute of Technology,Agartala, <i>BTech in Electronics and Communication</i>	CGPA: <b>8.23</b>	May 2025
Hindi Higher Secondary School,Agartala, <i>Higher Secondary(XII)-CBSE</i>	CGPA: <b>8.50</b>	Jun 2021
Holy Cross School,Agartala, <i>Secondary(X)-ICSE</i>	CGPA: <b>9.02</b>	May 2019

## EXPERIENCE

- Teachnook, Web Developer Intern** | Remote (Bangalore, India) Jul 2023 - Aug 2023
- Spearheaded the strategic conceptualization, strategic planning, information gathering, & comprehensive engineering efforts of an avant-garde digital marketing website, crafted to amplify the customer conversion rates.
  - Orchestrated the integration of advanced SEO optimization techniques, and leveraging APIs like Google Maps API.
- National Institute of Technology Agartala, Arduino** | In-person (Agartala, India) Nov 2022 - Present
- Developed streamlined code for a diverse array of sensors pivotal in landslide detection and early system, including moisture sensors, 3D-accelerometers, rain gauges, strain gauge, temperature and humidity sensors, and tilt sensors.
  - Implemented LoRa modules to establish robust and 100% reliable data transmission channels from sensors, ensuring seamless communication for real-time monitoring and early warning system deployment in landslide-prone regions.
- Indian Institute of Technology Jammu, RF & Microwave** | In-person (Jammu, India) Dec 2023 - Jan 2024
- Modeled and simulated a Wideband Metasurface-Based Reflective Polarization Converter 88% PCR for Linear-to-Linear and Circular Polarization using CST software and the Matlab, with the assessment quantified in percentages.
  - Engineered a high-efficiency reflective converter achieving a 59.66% fractional bandwidth in the lower band and 13% in the higher band, refined for diverse applications, delivering unmatched precision, excellence and reliability.

## ACHIEVEMENTS

- Achieved a praiseworthy rank, securing placement among the top 50 students in the Class 10 board exam in school.
- Earned a commendable 6th place in Science Olympiad Foundation's International Mathematics Olympiad,in school.
- Attained an impressive rank of 75,320 in the Joint Entrance Examination (JEE), showcasing proficiency in the field.
- Secured a prestigious in 20th position in Tripura Board Joint Entrance Examination,reflecting the academic prowess.
- Formulated refined and innovative solutions to tackle and conquer over 200 LeetCode challenges, attaining the pinnacle of time and space complexity optimization, and showcased adeptness with an average runtime improvement.

## SKILLS

Languages	C/C++, JavaScript, Verilog, Reactjs, Python, Matlab, Git, Expressjs, Nodejs, PostgreSQL, MongoDB
Software	Xilinx Vivado, Virtual Studio Code, Proteus, LabviewVI, Postman, Anaconda, Matlab, ArduinoIDE
Certifications	Web Development, Teachnook Intern – (2023)   Matlab, Matlab Onramp Certificate – (2024)

## PROJECTS

- 🕒 **Landslide Detection and Alert System – Under Dr. Mitra Barun Sir, STI-C NIT Agartala** Nov 2022 – Present
- Understanding Landslide Kinematics using IoT and Development of a site-specific **Landslide early warning system powered by the AI/ML module**, allowing for rudimentary intervention and reducing the potential damages by 60%.
  - Initiating the first phase of advanced landslide detection system by **integrating sensors via I2C, employing a microcontroller, PCB layout, & incorporating a LoRa module**, thereby advancing disaster management with edge technology.
- 🕒 **Digital Marketing Website – Using React.js,MySQL,Express.js,Node.js,Email.js** Jul 2023 - Sept 2023
- Led the development of a engaging and interactive website using React.js, enhancing user experience through smooth & enjoyable navigation,guiding the implementation of frontend & backend technologies to meet project objectives.
  - Implemented React Hooks for the efficient state management, enabling real-time updates and seamless interactions.
  - Backend solutions utilizing MySQL or SQLite databases to securely manage website data, ensuring data integrity.
  - Integrated the **Google Maps API** seamlessly into the website architecture to develop an immersive interactive map feature and users can effortlessly explore and navigate through the geographic locations with the ease and precision.
- 🕒 **Url Shortener – Using React.js,MongoDB,Node.js,Express.js,EJS** Dec 2023 - Jan 2024
- EJS templates were used for HTML, with cookie-parser middleware incorporated to manage stateful informations.
  - Utilized advanced error handling techniques, which resulted in the significant reduction in failed URL shortening.
- 🕒 **Tic-Tac-Toe – Using html,Javascript** Feb 2024 - Mar 2024
- Developed an immersive Tic-Tac-Toe game using HTML, JavaScript, and integrated sound effects for enhanced user engagement and deployed the application on Vercel, ensuring scalability and accessibility for users worldwide.
- 🕒 **Image Uploader – Using React.js,EJS,Express.js** Jan 2024 - Feb 2024
- Engineered an image uploader application leveraging Muster for streamlined data handling & Node.js for backend operation & integrated Nodemailer for automated emails & employed EJS templates for flexible frontend rendering.
  - Enforced secure file management practices and optimized data transmission to enhance the application performance.