



DEVKISHAN KHATRI



OCEAN & NAVAL ARCH / OCEAN ENGG. NAVAL ARCH. (M.Tech Dual 5Y)
MICRO SPL. in ARTIFICIAL INTELLIGENCE AND APPLICATIONS (+91 6377013030) devkishankhatri2411@gmail.com

EDUCATION

| Year | Degree/Exam | Institute | CGPA/Marks |
|------|---|---------------------------------------|------------|
| 2025 | M.TECH Dual Degree 5Y | IIT Kharagpur | 8.67 / 10 |
| 2019 | Board of Secondary Education, Rajasthan | Govt Fort SR SEC SCH, Bikaner | 77.20% |
| 2017 | Board of Secondary Education, Rajasthan | Maa Karni Adarsh VM SEC SCH, Deshnoke | 84.83% |

INTERNSHIPS

Installation and Analysis Engineering Intern | TechnipFMC

June '24-Aug '24

- Utilized **OrcaFlex** for **modeling** and performing **static** and **dynamic simulations** of the riser for strength analysis based on basis of design
- Created pre-processing spreadsheet based on the **load case matrix** and generated **96** simulation files (.sim file) under different conditions
- Developed Python script to **automate** post-processing spreadsheet of high-volume load cases, streamlining result extraction from HPC-Flex
- Built a **tool** to convert python script into executable file using **pyinstaller**, reduced **2-3 hours** of work to **1 minute** & reduced manual effort

Naval Architecture Intern | Prof. Ranadev Datta

April '24-June '24

- Analyzed **dynamic positioning (DP)** capabilities of a real-world ship with different failure scenarios of thrusters to assess performance
- Developed **C# algorithm** to calculate vessel stability and performance under **upright & damage** conditions using lost buoyancy method
- Estimated **resistance, hydrodynamic performance**, and **power** with varying froude numbers of practical vessel using **Holtrop method**
- Conducted a comprehensive analysis of an **operational jetty** (IWAI- Gujarat), including **GZ curve** evaluation and **stability** assessment

PROJECTS

Mathematical Model for Prediction of Shallow Water Wave | Bachelor Thesis Project | Prof. Ritwik Ghoshal

Aug '23-April '24

- Implemented **PINN** to solve **KDV Burger's equation** to model **shallow water wave** and analyzed wave behavior with and without viscosity
- Analyzed two realistic loading scenarios in wavy water to generate **buoyancy, load distribution, shear force**, and **bending moment** plots
- Improved neural network accuracy by reducing **mean square error (MSE)** to a **micro-scale** level & validated results with analytical solution

Comprehensive Ship Stability Analysis and Optimization | Prof. Ranadev Datta

Jan '24-April '24

- Performed **hydrostatic** and **dynamic analysis** of practical ship (USS- Cadnea) using Python, evaluating **stability** under different conditions
- Analyzed two realistic loading scenarios in wavy water to generate **buoyancy, load distribution, shear force**, and **bending moment** plots
- Computed **Response Amplitude Operators (RAOs)** in different conditions for **heaving** and **pitching** mode using **advance strip theory**
- Evaluated dynamic responses in **ballast & fully loaded departure** conditions to identify dominant response mode across various sea states

Linear Wave-Body Interaction Analysis | Prof. Trilochan Sahoo

Oct '23-April '24

- Developed MATLAB code to analyze wave interactions with single and dual bodies, measuring **Reflection** and **Transmission coefficients**
- Applied numerical methods like **Boundary Element Method (BEM)** and **Potential flow theory** to model body and wave configuration
- Generated plots to analyze the impact of **angle of attack** on reflection and transmission coefficients for **heave, pitch**, and **coupled modes**
- Performed **comparative analysis** between **single** and **dual bodies** setup to identify differences in wave behavior caused by body spacing

SKILLS AND EXPERTISE

Programming Languages and Libraries: C++, C, Python, VBA, SQL, NumPy, Pandas, Matplotlib, Seaborn, Sklearn, Tkinter, Openpyxl

Software and Tools: VS Code, Jupyter Notebook, Microsoft Office(Excel, Word, PPT), MYSQL, MATLAB, Orcaflex, Pyinstaller, GMSH

AWARDS AND ACHIEVEMENTS

- Secured **Department Rank 1** by achieving a **CGPA** of **8.58** and securing peak **SGPAs** of **9.86 & 9.81** in the last two consecutive semesters
- Secured an outstanding **AIR 17** in **GATE 2024** for Naval Architecture and Marine Engineering, underscoring exceptional academic prowess
- Achieved the top **1.4%** among **10 lakh** candidates in **JEE Mains** and the top **5.6%** among **2.5 lakh** candidates in **JEE Advanced 2020**

COURSEWORK INFORMATION

CSE: Programming and Data Structures, Artificial intelligence Foundations and Applications, Machine Learning Foundation and Applications

Maths: Probability and Statistics, Applied Computational Methods, Advance Calculus, Linear algebra, Numerical and Complex Analysis

Core: Seakeeping, Maneuvering, Numerical Ship and offshore Hydrodynamics, Computational Marine Hydrodynamics, Coastal Engineering, Ship Strength, Propulsion, Resistance, Marine Design, Analysis of Ocean structure, Offshore Technology, Advanced Marine Hydrodynamics

CERTIFICATIONS

Machine Learning Specialization | Andrew NG | Coursera (Stanford University)

- Completed three courses, specialization covering supervised, unsupervised learning, recommender systems, and reinforcement learning

OrcaFlex Software Certification & Implementation | Ilearn | TechnipFMC

- Successfully completed OrcaFlex software training, gaining proficiency in modeling & analysis, and utilized this expertise during internship

POSITIONS OF RESPONSIBILITY

Secretary Sports and Games | AZAD HALL OF RESIDENCE | IIT Kharagpur

Aug '21-May '22

- Managed budget of INR **75k+** for athletics and football, strategically allocating funds to enhance sports facilities for inter-hall competition
- Oversaw **72+** practice sessions and trials, leading to selection of **20+** members and secured 4th place in the Inter-Hall Athletics tournament

EXTRA CURRICULAR ACTIVITIES

- Appointed as **Teaching Assistant** for **Basic Engineering Mechanics**, supporting and mentoring a class of **150+** students during 2024-25
- Part of **Gold** winning IIT Kharagpur, Athletics team during the **55th Inter-IIT Sports Meet** held at IIT Delhi 2022-23 excelling among all IIT's
- Participated in the Athletics tournament at the **70th West Bengal State Athletics Meet**, representing IIT Kharagpur in the season 2021-22
- Secured **1 Gold, 1 Silver**, and **2 Bronze** medals in the General Championship Athletics tournament, representing Azad Hall 2021-22