PUBLICATION & PRESENTATION

- Lead author & presenter: "Design and Analysis of an Autonomous Underwater Vehicle Matsya 2.0" - **2nd best** poster at International Underwater Technology Workshop at National Institute of Ocean Technology   ['13]
- Authored 3 Technical Description Paper: "Research and Development of MATSYA series AUVs"; presented at AUVSI Robosub Competition organized by **U.S. Office of Naval Research**, San Diego, California   ['13-'15]
- Co-authored: "Development of Unique Robotic Manipulator and its Dynamic & Kinematic Analysis"; selected for presentation at **American Society of Mechanical Engineers (ASME)**, Montreal, Canada   ['14]

PROFESSIONAL EXPERIENCE

Wipro Limited   [Summer'15]
Big Data Intern, Wipro Analytics

- Contributed in Big Data project which integrates Hadoop, Hive, Pig, MySQL
- Developed on-the-top application to **automate manual process** of extracting tables from PDF files using iText JAVA api
- Tested installation procedure of the project as well as setup environment variables for Hadoop and Hive
- **Project guide commented** that he finds me to be sharp, dedicated and quick learner; what they have been working on is complicated and I have surprised him with my intelligence and hard work within a short span of time.

National Institute of Oceanography   [Summer'15]
Research Intern, Marine Instruments' Department

- Designed thruster for underwater Autonomous Vertical Profiler (AVP) to solve **rotational coupling of AVP** with thrust
- Modeled magnetic coupling to optimize the coupling size and number of magnets required
- Proposed 4 bevel gearbox to **reduce number** of motors required by contra-rotatory propellers **by 50%**
- **Project guide commented** that I possesses all qualities that a good master student should possess; that I have tenacity to implement ideas into both theoretical & practical implementation and I with my self-drive can be a productive scholar.

MAJOR PROJECT

AUVSI ROBOSUB, San Diego, CA (Organized by U.S. Office of Naval Research)   www.auv-iitb.org

Designed & developed a state of the art unmanned Autonomous Underwater Vehicle (AUV) that localizes and performs realistic naval missions based on feedback from visual, inertial, acoustic and depth sensors using thrusters and pneumatics.

Overall Achievements: First South-Asian University with DVL based localization capabilities '14; Supported by Ministry of Defense- NRB '13; Best performance ever by any Indian team '12; 6 International Conferences '12-'15

Team Leader   ['15-present]

- Spearheading Mechanical, Electronic, Software and Public Relation sub-divisions in student-run AUV Lab
- Managing operations, logistics, recruitments & knowledge transfer in **4-tier cross-functional team**
- Administering project worth **7 million INR**; planning for financial risks; propelling marketing efforts
- Improving strategy via **SWOT analysis**, project **collaboration** with IDC, IIT Bombay and **Porters four corners model**

Leader, Mechanical Subdivision   ['14-'15]

- Transformed subjective design requirements to objectives further down to realistic deadlines and deployed **House of Quality Chart** as Quality Function in order to scientifically prioritize objectives
- Proposed & implemented maintenance and checkup strategy to ensure **long term quality, quick response to jeopardy** and to meet future deadlines while concurrently covering up accumulated ones

- Incorporated industrially tested & trusted processes like Vacuum Impregnation to **increase rigor** in fabrication process
- Managed a group of 3 cheif engineers and 5 fabrication engineers

    Key achievements: *Over all weight reduced by 10%, endurance boosted by 200%, speed increased by 40%, points scored increased by 100%, integrated hydrophone array*

Chief Engineer, Mechanical [’13-’14]

- Designed exo-skeleton for AUV & simulated via **Computational Fluid Dynamics** and **Finite Element Analysis**
- Incorporated market constraints and optimized fabrication cost based upon geography to design the AUV

    Key achievements: *Incorporated military grade DVL sensor costing **INR 16,00,000**, reduced total drag by 20%, innovated to reduce connecting parts' fabrication cost by 50%*

Fabrication Engineer, Mechanical [’12-’13]

- Fabricated hulls, frame and pneumatic of the AUV; assured **top-notch fabrication** method; managed routing and piping

    Key achievements: *Designed brackets for efficient routing, saved 94% of cost for underwater connector, fabricated & assembled pneumatic system*

ACHIEVEMENTS & AWARDS

- Honored with the prestigious **Institute Technical Color** (10 out of 5000 students) [’14-’15]
- Awarded **Institute Technical Special Mention** (20 out of 5000 students) [’13-’14]
- Scholarship for Higher Education (SHE) under INSPIRE scheme by Department of Science & Technology, Ministry of Science & Technology for being in **top 1%** in C.B.S.E. High School [’12]

MAJOR COURSE PROJECT

Timetable Optimization [Spring'15]
Engineering Design Optimization

- Implemented genetic algorithm for **optimal distribution of time** among various tasks based on priorities **Grade: AB**

Automated Hostel Room [Autumn'13]
Introduction to Engineering Design

- Implemented **concepts including** stakeholder analysis, requirement capture, quality function deployment, critical design review, Standard Operating Procedure (SOP) and Concept of Operation (Con Ops)
- Designed and fabricated a **Proof Of Concept (POC)**; presented in front of Professor and class **Grade: AA**

Solve & Plot [Spring'13]
Computer Programming and Utilization

- Developed a program to **numerically solve** user provided first order differential equation and plot the resulting solution
- Enhanced **user experience** by providing pan and zoom features in the graph **Grade: AA**

SKILL SET

S o f t w a r e : C++, JAVA, Hadoop, Pig, MySQL, HTML, Javascript, Matlab, LATEX
Mechanical : Metalworking Machining, Lathe, Welding, Woodworking, CNC Mill, Solidworks and ANSYS

EXTRA-CURRICULAR ACTIVITIES

- **Mentored team** to build remote controlled car which secured **2nd rank** out of 90 participating teams [Aug'13]
- Swam continuously for **12 hours spanning 14.8 kms** in institute's Swimathon competition [Apr'13]
- Member of **only team** to secure maximum points in AUV trials which required a robot to shoot targets [Sep'12]
- Sole team to build remote controlled car utilizing Ackerman's steering mechanism [Aug'12]
- **Ran 6 kms** Cross-Institute Marathon thrice for inter-hostel competition [’13-’14]