DEVANK THAWRE

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EDUCATION

NYU Tandon School of Engineering — **New York, NY**
Master of Science in Mechatronics and Robotics — *May 2026*

Indian Institute of Technology Kharagpur — **West Bengal, India**
Master of Technology: Industrial Engg. & Management (Dept of Industrial & Systems Engg.) — *May 2023*
Bachelor of Technology: Manufacturing Science & Engg. (Dept of Mechanical Engg.) — *May 2022*

EXPERIENCE

NYU Tandon School of Engineering — **New York, NY**
Adjunct Faculty - Contract — *Aug 2024 - Present*

- Delivered lectures on electronics and measurement systems to a class of 30+ students in ME-UY 3511, covering advanced topics such as PC-based data acquisition, filters, encoders, accelerometers, and operational amplifier applications.
- Facilitated hands-on learning experiences, resulting in the successful design and construction of over 15 active filters by students, achieving a 90% accuracy rate in both theoretical design and practical implementation.

Mechatronics Controls & Robotics Laboratory | NYU — **New York, NY**
Research Intern — *May 2022 - Aug 2022*
[Title: Development of an autonomous mobile manipulator for dialysis machine]

- Conceptualized and designed a mobile manipulator assembly for autonomous operation of a hospital ward dialysis machine.
- Developed comprehensive CAD models for the main structural body, manipulator and mobile robot components.
- Engineered the internal circuit to govern the mobile manipulator, encompassing microcontrollers, sensors and power management of the robot.
- Utilized Ansys for assembly simulation, optimizing the design parameters, calculating stress, deformation, and ensuring cost-effectiveness of the robot.
- Conducted dynamic simulations of the designed robot in Gazebo, evaluating its performance in realistic environments.
- Integrated Lidar mapping into the simulation, enhancing the robot's ability to perceive and navigate real-world conditions autonomously.

ROBEL | Dr. Vikash Kumar- Adjunct Professor, The Robotics Institute, CMU [link] — **Washington, CA**
Research Intern — *June 2020 - Aug 2020*
[Title: Development of an anthropomorphic arm to study dexterous manipulation for Reinforcement Learning]

- Engineered a cost-effective anthropomorphic hand model (D'Manus) capable of performing diverse day-to-day tasks.
- Conceptualized a design featuring a 10 degrees of freedom (DOF) robotic hand operating on an R-R-R chain link, employing high-performance motors for enhanced functionality.
- Modelled the entire system in a physics engine, facilitating simulation and in-depth study of its dexterity in handling forty plus different shapes and sizes of tools.

TeamKART | Formula SAE Team | IIT Kharagpur [link] — **West Bengal, India**
Powertrain Team Member — *Sept 2018 – Jan 2020*

- One of the 4 members working towards application of an IC engine in formula student vehicle.
- Developed a rule-compliant powertrain with improved efficiency for Formula Bharat 2020.
- Studied the intake manifold design of IC engine by simulating the transient flow inside the geometry.
- Designed an engine jig for safe operation and testing purposes of the engine and its related components.

TECHNICAL SKILLS

CAD-CAE & Simulation:	SolidWorks, Fusion 360, Ansys Structural (FEA) & Fluent, MuJoco, MATLAB, ROS
Programming Language:	C#, Python
Others:	Arduino, Raspberry-Pi, Adobe Photoshop, Word, PowerPoint, Excel
Engineering Methods:	Finite Element Analysis (FEA), Generative Design, Sheet Metal Forming, Laser Cutting, CNC Machining, Rapid Prototyping, 3D printing, Injection Molding, Risk Assessments, Root Cause Analysis, FMEA, DFM, DFA

PROJECTS

Wall Climbing Robot | Prof. Dilip Kumar Pratihar | IIT Kharagpur **West Bengal, India**
Solo Project *Sept 2021 – April 2023*

- Designed and developed a wall-climbing quadruple robot for industrial inspections on walls and pipelines.
- Generated comprehensive CAD models to precisely represent the robot's structure, designing it completely from beginning.
- Conducted motion analysis to evaluate and optimize the robot's gait movement for efficient wall climbing.
- Utilized Ansys for dynamic analysis in the simulation phase to ensure structural integrity and performance.
- Implemented ROS (Robot Operating System) for simulation in Gazebo, providing a realistic virtual environment.
- Constructed a functional prototype of the robot, employing suction as the primary mechanism for climbing walls and surfaces.
- The prototype aimed to address industrial maintenance needs, showcasing the practical application of the designed technology.

AUXILIA | Brain Controlled Prosthetic Arm | IIT Kharagpur [link] **West Bengal, India**
Team Project [General Championship] *Nov 2018 - Feb 2019*

- Auxilia features intelligent control algorithms and autonomy by incorporating advanced image processing techniques.
- Proposed design for the flexion of thumb applying the positive drive system for full actuation of thumb with single servo.
- Designed fingers of the hand using 4 bar linkage mechanism for each joint to replicate natural movement of human fingers.
- Performed stress analysis on the hand for strength optimization within material’s limits.
- Employed Arduino to ensure the effective coordination of the entire hand, enhancing its capability to adapt and grip objects with accuracy.

EXTRA CURRICULAR

- Campus Affiliate: Individually publicized Kshitij, the Techno-management Fest of IIT Kharagpur, in various engineering colleges, bringing maximum participation from the city, and handled the ‘Embetronix’ event which saw participation of 50+ teams from across the country.
- Short Film Making: Assistant Director & Secretary of the Gold-winning Short Film team for Nehru Hall of Residence's General Championship, also overseeing regular update meetings and planning to ensure effective team performance.