Bibek Poudel

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Education

New York University Abu Dhabi *Abu Dhabi, UAE*
B.Sc. in Computer Engineering, GPA [3.91/4] *Aug 2022 – May 2026*
Minor in Robotics

- ***NYUAD Engineering Fellowship (2024–2025):*** *Selected by the NYUAD Engineering Department for a one-year fellowship to study at NYU in New York, focusing on advanced coursework and collaborative research.*

Relevant Coursework:

- *Robotic Manipulation and Locomotion (ROB-UY 2004), Robot Vision (ROB-UY 3203), Computer Vision (CS-GY 6643), Simulation Tools for Robotics (ROB-UY 4423), Introduction To Haptics and Telerobotics in Medicine (ROB-UY 3404), Introduction to Machine Learning (ECE-UY 4563), Computer-Aided Design (ENGR-UH 3720)*

Experience

iCAS Lab, NYUAD *Abu Dhabi, UAE*
Student Research Assistant *Sep 2025 – Present*

- Work with **Unitree Z1 Pro** robotic arm for manipulation tasks, leveraging **object detection models** and optimal grasp pose algorithms (**GGCNN**, **GR-ConvNet**, **AnyGrasp**).
- Integrate manipulation and perception pipelines with **Aliengo** quadruped for **whole-body locomotion** and coordinated motion.
- Develop **learning-from-demonstration** and **bimanual teleoperation** frameworks using **AgileX Mobile Cobot** for precise manipulation over long-horizon tasks.

Robot Control and Learning Lab, NYUAD *Abu Dhabi, UAE*
Student Research Assistant *Apr 2025 – Sep 2025*

- Applied **Policy Improvement with Path Integrals (PI^2)** algorithm to train **Franka Research 3** robotic arm for manipulation tasks like throwing a ball, achieving learning in a few iterations without dedicated GPU
- Implemented the simulation of the **Franka Research 3** robotic arm using **MuJoCo**, focusing on implementing and benchmarking **Variable Impedance, admittance, and reinfrocement learning-based controllers** for precise manipulation tasks.
- Developed and tested algorithms for **simulation-to-real** robot skill transfer, enabling robust deployment of learned skills on the physical Franka arm.

Flexible AI-enabled Mechatronic Systems Lab (FAMS) *New York, USA*
Research Assistant *Jan 2025 – May 2025*

- Designed and prototyped a **3-DOF robotic arm** integrated with flexible **soft robotic fingers**, using **SolidWorks** for mechanical design and **silicone molding** techniques for custom actuator fabrication.
- Integrated embedded sensing capabilities using **flex sensors**, enabling responsive grasp and deformation feedback.
- Programmed real-time control and communication systems using **Raspberry Pi**, **ROS (Robot Operating System)**, and **Python** to achieve basic manipulation tasks and remote actuation.

Cleveland Clinic Abu Dhabi *Abu Dhabi, UAE*
Research Assistant *Jan 2024 – Oct 2024*

- Developed an adaptable **CT scanning phantom prototype** for medical imaging and radiotherapy, utilizing **Solidworks** and **3D printing** technology.
- Authored a **quality control manual** to streamline project processes and improve overall workflow.
- Explored **certification pathways** to ensure compliance with industry standards and pave the way for project accreditation.

The Vijay Lab *Abu Dhabi, UAE*
Student Research Assistant *Aug 2023 – Aug 2024*

- Developed a **handheld bio-printer** prototype for **tissue engineering/ins-sity tissue printing**, featuring **helical bio-ink extrusion**, **adjustable flow rates**, and **ergonomic design**.
- Utilized **CAD modeling** and **3D printing** technology to fabricate structural components.
- Achieved **helical extrusion** using **two different bio-inks**, enabling the creation of **complex, heterogeneous tissue structures** with varying properties.

Relevant Projects

RL Based Learning for Throwing a Ball with a 7-DOF Robotic Arm: MuJoCo| Reinforcement Learning| Franka Panda | Dynamics | Robot Control | Kinematics Link

Optimal Grasping and Manipulation using Unitree Z1 Pro Robotic Arm: MuJoCo| Robot Vision| Unitree Z1 | Hand-eye Coordination | Camera Calibration| Kinematics Link

Pick and Place using Franka Research 3: MuJoCo| Joint/Cartesian Controllers | Robot Manipulation | Kinematics | Inverse Kinematics Link

Smart Logistic Mobile-Manipulator Robot: Robot Vision | Mobile Manipulator| Navigation| Manipulation| Python| ROS | Computer Vision Link

Haptics Enabled Smart Goggles for Visually Impaired Person: Computer Vision| Yolo V7| Embedded Systems| Raspberry Pi| | Solidworks Link

Autonomous Maze Solving Robot Simulation: Robot Vision| Homography| VPR| Pygame| Navigaation| Optimal Path Planning Link

Skills

Programming Languages:	C, C++, MATLAB, Python
Software Packages:	Solidworks, Arduino, KiCad, TensorFlow, PyTorch, Scikit-learn, Adobe Creative Suite, LaTeX
Hardware:	Arduino, Esp32, STM32 Microcontrollers, M5stack, Microbit, Laser Cutting, 3D printing, CNC machining, Raspberry Pi, Nvidia Jetson Nano
Machine Learning:	Neural Networks, Deep Learning, Computer Vision, Data Analysis
Robotics:	Robot Operating System (ROS), SLAM, Path Planning, Robot Kinematics
Languages:	English, Nepali