BISHAL ADHIKARI

+977 9860895124 | 076bie011@tcioe.edu.np | Personal Website

linkedIn | WinnerBishal

Panauti, Nepal

OBJECTIVE

A highly self-motivated industrial engineer with passion in Robotics (Dynamics, Manipulation, Planning), Advanced manufacturing (Additive, CNC Machining) and AI (Computer Vision). I am seeking to specialize in a research area that integrates either or all of these domains which is indispensable in taking forward the ongoing industrial revolution.

EDUCATION

- **TRIBHUVAN UNIVERSITY** *2020 - 2024*
  Thapathali Campus, IOE Kathmandu, Nepal
  - Bachelors' Degree in **Industrial Engineering**

PROJECTS

- **Tiago Robot Localization, Mapping and Path Planning in Webots** *February 2024*
  Tools: Python, Webots [ ]
  - Implemented odometry based **localization** algorithm for a two wheeled robot in Webots
  - Implemented **LiDAR** based environment mapping using Tiago, a two wheeled robot
  - Implemented **RRT and A*** in python and integrated with Webots for path planning
  - Designed Behavior Tree structure to integrate localization, mapping and path planning modules
- **Design, Fabrication and Testing of an Industrial Delta Robot for Pick and Place** *July 2023 - December 2023*
  Tools: Python, ROS, Arduino, Solidworks, Prusa Slicer [ ]
  - Used SolidWorks for design and assembly of the robot structure
  - Developed **3D Spline Interpolation** based path planning algorithm in python
  - Trained **YOLO-v8** on custom tomato dataset for object detection and classification
  - Developed Python script for forward and inverse **kinematics** of the robot
  - Used **ROS2** for communciation between vision, planning and control subsystems
- **NASA SpaceApps Challenge 2023 : Imaging Spectroscopy** *October 2023*
  Tools: Python, NASA EMIT Database, MODIS Database [ ]
  - Utilized EMIT & MODIS data to map biodiversity within the Cape Floristic Region of South Africa.
  - Developed a Python script to extract and process data from the EMIT database
  - Devised an algorithm to study biodiversity of a region using spectral data of nearby locations
- **Smart Dustbin with Vision Based Waste Seggregation** *March 2023*
  Tools: Python, Fusion 360, Arduino [ ]
  - Trained and implemented YOLO v7 model for waste seggregation into paper, metal, plastic and organic waste
  - Designed mechanical system for waste disposal at designated compartment

WORK EXPERIENCE

- **Orion Space [ ]** *March 2024 - June 2024*
  R&D Intern Bhaktapur, Nepal
  - Developed solar panel deployment system for **PocketQube satellite**
  - Conducted research on impact analysis of solar panel deployment
  - Hands-on 3D printing and laser cutting for prototyping, Fusion 360 for modelling
  - Trained juniors on PocketQube satellite assembly and drop-testing
- **Society of Industrial Engineering Students, Nepal [ ]** *May 2022 - May 2023*
  Secretary Kathmandu, Nepal
  - Organized Arduino Programming Workshop for students
  - Gained hands on experiences with financial and administrative tasks such as minuting, budgetingand events planning

Certifications

- **Arizona State University on Coursera:** Additive Manufacturing Specialization *July 2024*
- **Northwestern University on Coursera:** Modern Robotics Specialization *August 2024*
- **University of Colorado Boulder on Coursera:** Introduction to Robotics with Webots Specialization *August 2024*
- **IACMI The Composites Institute:** CNC Machining Training Program *July 2024*
- **DeepLearning.AI:** Deep Learning Specialization *August 2024*

Publications

C=Conference, J=Journal, P=Patent, S=In Submission, T=Thesis

[S.1] Adhikari B, et al. (2024). **Design and Implementation of a Vision Integrated Delta Robot for Pick and Place Operations**. Manuscript submitted for publication in *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*.

Skills

- **Programming :** Python, MATLAB, C++, ROS2
- **Design & Manufacturing:** Solidworks, Fusion 360, 3D Printing, Ansys, Laser Cutting, CAM
- **Research Skills:** Data Collection, Data Analysis, Literature Review, Report Writing (**LaTeX**)

Honors and Awards

- **THAPATHALI GRADUATE CONFERENCE - 2081** *June 2024*
  Thapathali Campus, Institute of Engineering [🌐]
  * Awarded as one of the best final year projects
  * Presented the Delta robot project in the event
- **3D PRINTING TRAINING** *February 2023*
  Ministry of Industry Commerce and Supplies, Nepal [🌐]
  * Selected for 3D printing training program from Industrial Engineering Department
  * Learnt from industry experts about 3D printing technology
- **AI FELLOWSHIP AWARD** *January 2023*
  Fusemachines [🌐]
  * Granted fellowship to study and work on AI and Machine Learning projects using PyTorch
  * Got an opportunity to learn from industry experts
  * Obtained Microdegree in Machine Learning and Deep Learning

Additional Information

Languages: Nepali (Native), English (Fluent), Hindi (Fluent)

References

1. **Jiten Thapa**
   Project Manager
   ORION Space Nepal
   Email: jitenthapa56@gmail.com
   Relationship: Internship Supervisor
2. **Sushant Raj Giri**
   HoD, Department of Industrial Engineering
   Thapathali Campus, Institute of Engineering, Tribhuvan University
   Email: sushantgiri@ioe.edu.np
   Relationship: Lecturer
3. **Akhalesh Yadav**
   Lecturer, Department of Industrial Engineering
   Thapathali Campus, Institute of Engineering, Tribhuvan University
   Email: akhaleshyadav41@gmail.com
   Relationship: Project Supervisor