

Ranul Vithanage

Undergraduate, University of Moratuwa, Moratuwa, Sri Lanka

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RESEARCH INTERESTS

Human Computer Interaction, Computer Vision, Autonomus Systems, Robotics

EDUCATION

University of Moratuwa, Moratuwa, Sri Lanka

BSc Eng (Hons) in Mechanical Engineering

Dean's List in Semesters 1, 2, 6 and 7

January 2019 — Present

Cumulative GPA: 3.71/4.20

PUBLICATIONS

Robust summoning capabilities for a Patient Assistive Mobile Robot

A. Trivedi et al., "Height Estimation of Children under Five Years using Depth Images." arXiv, Jul. 30, 2021. Available: <http://arxiv.org/abs/2105.01688> (to be published)

- LiDAR based SLAM for Localization and Mapping
- Sound Source Localization for out of line-of-sight navigation
- Depth estimation by Stereo Vision and Gesture Recognition for line-of-sight navigation

Design and Simulation of a thermally actuated microgripper with active release mechanism for biological micro-manipulation

A. Trivedi et al., "Height Estimation of Children under Five Years using Depth Images." arXiv, Jul. 30, 2021. Available: <http://arxiv.org/abs/2105.01688> (to be published)

- Active Release Plunger works on the principle of Bi-stable Compliant Mechanism
- Novel Design featuring both Pseudo bimorph (U-shaped) and Chevron-shaped (V-shaped) actuators

PROJECTS

Design and Development of a Multi Functional Robotic Walker

Sep 2023 - Present

- Able to be autonomously summoned to the user's location without relying on Indoor Positioning Systems (IPS).
- Provides active user guidance suiting the user's pace with intuitive control methodology.
- Provides sit-to-stand assistance upon estimation of user height through computer vision.
- Performs Gait Analysis using a walker-mounted 2D LiDAR device.

Design and Development of a Remote monitoring Robot for Walking Rehabilitation

- Performs Rhythmic Auditory Stimulation as a rehabilitation aid for users with gait disorders
- Able to monitor real-time gait data using wearable IMUs worn by the user remotely by a medical professional
- Provides verbal feedback for gait improvement to the user without external monitoring

PROFESSIONAL EXPERIENCE

Dipped Products PLC

Industrial Automation Intern

Kottawa, Sri Lanka

January 2023 — June 2023

- Designed a Glove Washing Station following Latex Dipping Tank for an automated production line
- Designed an automated glove folding mechanism that integrates with a conveyor belt.
- Designed an automated glove cuff cutting mechanism for Supported gloves improving safety and efficiency
- Designed an automated mechanism for transferring glove formers from drying ovens to latex dipping stations
- Completed 3D Designs and Detailed Drawings for Fabrication of components in Glove manufacturing plants

AIESEC in Nepal*National Head of Talent Management and Organizational Development*

Kathmandu, Nepal

July 2022 — January 2023

- Responsible for Membership Experience Program (MXP) implementation
- Responsible for the National Project Managers
- Responsible for the National Ethics Subcommittee and Membership Subcommittee
- Talent Management Commission and Network Management
- Responsible for implementation of the Organizational Development (OD) model
- Responsible for local entity process assessment, improvement and coaching

COURSES

Bachelor's Courses

- | | |
|--|---|
| <ul style="list-style-type: none"> • Robotics Technology • Object Oriented Programming Using C++ • Control Systems & Instrumentation • Industrial Automation • Micro/Nano Electro Mechanical Systems and Nanotechnology | <ul style="list-style-type: none"> • Biomedical Engineering Applications • Calculus • Linear Algebra • Operational Research • Applied Statistics • Graph Theory |
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Additional Courses

CIMA (Chartered Institute of Management Accountants)

*Certificate Level Completed (Self-learned)***VOLUNTEERING EXPERIENCES**

Diriya Arunalu*Co-Founder & Educator*

Galle, Sri Lanka

Jan 2019 - Dec 2019

- Co-founded the initiative to support Mathematics education in underprivileged schools in Galle
- Organized numerous teaching sessions in correspondence with school management
- Taught Mathematics to students in Grade 10 and 11 preparing for G.C.E. O/L Examination
- Organized book donations among peers to donate to ill-resourced libraries

SKILLS

- **Programming:** Python, C++, MATLAB
- **Libraries:** OpenCV, Numpy, Matplotlib, SciKit-Learn
- **Software:** SOLIDWORKS, COMSOL, Solid Edge
- **Soft Skills:** Collaboration, Critical thinking, Written/Oral communication.

REFERENCES

Prof. Y.W.R. Amarasinghe*Mechanical Engineering Department, University of Moratuwa, Sri Lanka*

E-mail: ranama@uom.lk

Dr. Palitha Dassanayake*Mechanical Engineering Department, University of Moratuwa, Sri Lanka*

E-mail: palitha@uom.lk

Dr. Dumith Jayathilaka*Mechanical Engineering Department, University of Moratuwa, Sri Lanka*

E-mail: dumithj@uom.lk