Vishnu Venkatesh

linkedin.com/in/vishnuv96 +91 82209 86602 vishnu.venkatesh1296@gmail.com

PROFILE

Adaptive engineer with a track record for developing solutions in robotics and non-destructive evaluation. Leveraging a multidisciplinary background in Engineering Physics and 3+ years of cutting-edge R&D experience to shepherd ideas from inception to commercial realization. Expertise in engineering management, rapid prototyping, mechanical design and software development.

WORK EXPERIENCE

Project Associate

Center for Non-Destructive Evaluation IIT Madras, Chennai. (February 2025 – Present)

Conducting research in robotic control, path-planning and navigation, with a focus on Reinforcement Learning based approaches. Development of an AUV for oceanography with homing and docking capabilities.

Manager, Products and Research

Planys Technologies, Chennai. (August 2021 – February 2025)

R&D in the domain of underwater robotics, and NDT. Responsible for product development, literature and market research, mentorship, publication and presentation of academic papers and patents.

Robotics Software and Control Systems

Autonomous Surface Vehicle – Designed and implemented the software architecture and control system for a waveglider to conduct autonomous navigation and acoustic analysis of a marine environment.

Autonomous Underwater Vehicle – Implemented and field-tested an autonomous control system for an AUV, integrating obstacle detection and avoidance capabilities using navigational sonar. Developed signal processing and visualisation programs for the AUV payload.

Underwater Positioning

Acoustic Positioning – Developed an underwater acoustic positioning system for the localization of targets in reflective environments.

Vision-Based Positioning – Invented a patent-pending monocular, passive, vision-based positioning system for real-time localization of targets in enclosed places.

Signal Processing

Onset Detection – Developed an energy-based method to detect the onset of acoustic pings.

Thickness Estimation – Developed software for the analysis of UT and impact echo scans to extract thickness information.

Naval Ranging – Developed software suite for processing acoustic and magnetic signals used for naval ranging exercises.

Underwater Non-Destructive Testing and Inspection

Ultrasonic Thickness – Developed a scanning UT payload for a magnetic crawler, with real-time thickness estimation capabilities, for inspection of large metallic structures.

EMATs – Developed and tested Electromagnetic Acoustic Transducers in a lab environment.

Impact Echo – Developed and tested an ROV-based impact echo payload for concrete inspection.

Line Laser – Developed a patent-pending system to visually extract dimensions of surface defects using line-laser projections.

Structural Health Monitoring

Internet of Underwater Things – Developed and deployed a prototype IoUT device for underwater asset management leading to the establishment of a new IoUT vertical in the company which has delivered market-ready units to clients.

Technical Experience

Programming
- Python
- C
- ROS
- C++

Modeling and Analysis
- SolidWorks
- MATLAB
- COMSOL

Competencies
- 3D CAD and Manufacturing
- Software Development
- Digital Signal Processing
- Image Processing
- Data Acquisition and Processing
- Mathematical Modeling

Content Development
- Microsoft Office
- Google Suite
- LaTeX

Languages
- English (Fluent)
- Tamil (Conversational)
- Hindi (Conversational)
- French (Basic)
- Japanese (N4)

Extracurriculars
- Public Speaking
- Origami
- Machining
- Piano
- Cooking
- Sanskrit

Vishnu Venkatesh

linkedin.com/in/vishnuv96 +91 82209 86602 vishnu.venkatesh1296@gmail.com

PUBLICATIONS

V. Venkatesh, *et al*, "A system and method for determining 2D localization of a target in confined spaces," India Patent Application 202441043379, filed Jun. 4, 2024.

V. Venkatesh, *et al*, "A system and method for estimating dimensions of surface defects and flaw gauge thereof," India Patent Application 202441072882, filed Sep. 26, 2024.

V. Venkatesh, *et al*, "Quantitative Non-Destructive Testing (NDT) of Submerged Civil Concrete Structures Using Remotely Operated Robotic Drones," *NDT-CE 2022*, pp. 1-8, August, 2022.

V. Venkatesh, *et al*, "Assessment of Structural Integrity of Submerged Concrete Structures Using Quantitative Non-Destructive Techniques Deployed from Remotely Operated Underwater Vehicles (ROV)," *OCEANS 2022 - Chennai*, pp. 1-6, May, 2022.

V. Venkatesh, *et al*, "Non-Destructive Testing of Quay Walls Using Submersible Remotely Operated Vehicles (ROV) In Waterways Around the North Sea Coast," *OCEANS 2022 - Chennai*, pp. 1-6, May, 2022.

EDUCATION

Bachelor of Applied Science, Engineering Physics (ENPH)

University of British Columbia (UBC), Vancouver (2020)

Magnetic Mapping of SRF Cavities, TRIUMF (2019)
Worked in a team to simulate, design and construct a tri-axial Helmholtz coil array to study magnetic flux trapping in superconducting cavities.

Moving Magnetic Field Particle Trap Decelerator, CRUCS (2018)
Worked in a team to simulate, design, fabricate and test a prototype section of a linear magnetic particle decelerator to create ultra-cold particles.

UBC ENPH Robot Design Competition (2016)
Designed and fabricated the mechanical assembly of an autonomous transport robot.

UBC Orbit Design Team (2015)
Designed the chassis and internal layout of a CubeSat designed to identify forest fires.

IB Diploma Program

Abu Dhabi International School, Abu Dhabi (2014)

EXTRACURRICULARS

Toastmasters *(2009 – Present)*

- Participated in Toastmasters clubs in many cities worldwide.
- Experienced public speaking coach and mentor for youth and adults.