

# Viduranga Shenal Landers

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*A highly motivated student with strong leadership qualities who is constantly seeking new challenges to push the limits of his knowledge. Actively seeking for research and academic opportunities in astronautics and quantum computing.*

## EDUCATION

University Education, [University of Colombo School of Computing, Sri Lanka \(2023 - 2027\)](#)

B.Sc. program in Computer Science

Secondary Education, [D. S. Senanayake College, Colombo 07, Sri Lanka \(2013 - 2022\)](#)

GCE Advanced Level (2022): 2 A, 1 B, 1 C (Physical science stream) | SAT (2022): 1490 (790 Math & 700 EBRW)

GCE Ordinary Level (2018): 9 A passes

Activities: President - Astronomy Club, Secretary - Social Services Association, Exec. Member - Aeronautical Club

## RESEARCH EXPERIENCE

Co-Lead - HOPE Team (Jan 2023 – Present),

Structures & Thermal Subsystem Lead - RAISE Team (Jan 2022 – Dec 2022),

[ACHIEVED | Space Exploration Project Group | Space Generation Advisory Council](#) 

- Currently leading an international research team in the design of a [CubeSat mission to a Uranian moon \(HOPE-2023\)](#)
- Designed the mechanical and thermal subsystems of a [sample return mission concept to Mercury \(RAISE-2022\)](#)
- Presented research papers at the International Astronautical Congress (IAC-23,B4,8,12,x76984), (IAC-22,A3,5,1,x69552)

Project Lead (Aug 2022 – Present), [Nexus Aurora Corporation](#) 

- Currently leading an international research team in the development of a [planetary penetrator \(Soil Penetration Darts\)](#)
- Presented a research paper at the International Astronautical Congress (IAC-22,A3,IPB,30,x72590)

Remote Student Team Lead (May 2022 – Present), [Global Lunar Expedition for Everyone](#) 


- Global Lunar Expedition is a NASA Artemis Challenge that aims to [send student-developed ChipSats to the Moon](#)
- Currently leading the mission operations planning and programming phases of two LunaSats

Technical Lead - Taprobane v4.0 (Apr 2023 – Present),

Systems Engineering Group Lead - Taprobane v3.0 (Jan 2022 – Mar 2023),

[Robotics and Rover Division of SEDS Sri Lanka](#) 

- The Robotics and Rover Division of SEDS Sri Lanka is developing Taprobane, [Sri Lanka's first ever analog Mars rover](#)
- Currently leading a 50+ member university student team in the development and renovation of Taprobane rover
- Introduced and implemented systems engineering principles to the ongoing project from ground-up.

Team Leader (Feb 2020 – Present), [Lunarbot](#) 

- Founder of Lunarbot, a local student team that develops innovative instruments for planetary rovers:
  - [SAWS: A grouser adjustable wheel system](#) | [SWORD: An extendable drilling mechanism for deep drilling](#)
  - [SPIDER: Runners-up Lunar rover concept at the Singapore Space Challenge 2021](#)
- Lunarbot collaborated with Nexus Aurora in 2021 to produce eight prototypes of the SAWS system, [testing six prototypes on the SSAM rover in Arctic](#) and two on an Axel rover configuration in Sri Lanka.
- A collaboration with Nexus Aurora is underway with a possible funding opportunity from NASA Jet Propulsion Laboratory

## WORK EXPERIENCE

Writer / Programmer - Part Time (Mar 2022 – Present), [Fiverr](#)

- Working on research writing, data science, machine learning, data analysis, and programming projects

Technical Assistant - Part Time (Oct 2019 – Aug 2020), [Deluxe Traders Pvt. Ltd](#)

- Aided repair and configuration of 100+ work laptops

## HONORS AND AWARDS

Prachi J. Vakharia Scholarship	Womanium Quantum 2023: Global Quantum Program	2023
5 <sup>th</sup> Place - Qualification A	European Rover Challenge - Remote edition (Team)	2023
17 <sup>th</sup> Place - Finalist Team	European Rover Challenge - On-site edition (Team)	2022
Advanced Achievement x5	IBM Quantum Challenge	2021, 2022, 2023
Top Scorer	IBM Quantum Challenge	2021
Distinction Award	Singapore Space Challenge 2021 (Team)	2021
High Distinction	Sri Lankan Mathematics Competition	2018, 2019, 2021
Global Nominee	NASA Space Apps Challenge 2020 (Team)	2020
Silver Award	Hong Kong International Mathematics Olympiad Heats	2020
Gold Medal	Sri Lankan Astronomy & Astrophysics Olympiad	2019

## PUBLICATIONS

### Conference Papers

**Soil Penetration Darts (SPDs) for Deep Soil Sampling** (IAC-22,A3,IPB,30,x72590)

73<sup>rd</sup> International Astronautical Congress in Paris, France (Sep 18-22, 2022) | Landers V.\*, Pathirana O., et al

**Mercury Sample Return Mission Design Utilizing Innovative Systems and Technologies** (IAC-22,A3,5,1,x69552)

73<sup>rd</sup> International Astronautical Congress in Paris, France (Sep 18-22, 2022) | Rao S.\*, Landers V., et al

**A Self Adapting Wheel System** (IAC-21,E2,3-GTS.4,2,x65366)

72<sup>nd</sup> International Astronautical Congress in Dubai, UAE (Oct 25-29, 2021) | Landers V.\*, Pathirana O., Pieris J., Ranasinghe S.

### Accepted Conference Papers in Making

**High-technology Operation for Planetary Exploration - uRanian mOons impActoR (HOPE-ROAR) mission: an innovative in-depth study of the Uranian satellites** (IAC-23,B4,8,12,x76984)

74<sup>th</sup> International Astronautical Congress in Baku, Azerbaijan (Oct 02-06, 2023) | Landers V.\*, Campioli S., et al

### Accepted Book Chapters in Making

**Quantum Revolution in Space: Enhancing Space Technology**

Space Law Principles and Sustainable Measures, Space Law and Policy Series, Springer | Landers V.\*

**Quantum Technologies for Space and Aerial Vehicles**

Space Governance: Challenges, Threats and Countermeasures, Space Law and Policy Series, Springer | Landers V.\*

## PATENTS

**A Fully Autonomous Extendable Drill** (Applied – Sri Lankan Patent Application No: LKA21652)

Landers V., Pathirana O., Pieris J., Ranasinghe S.

**A Wheel that includes Autonomous Adjustable Grousers** (Applied – Sri Lankan Patent Application No: LKA21653)

Landers V., Pathirana O., Pieris J., Ranasinghe S.

## PROFESSIONAL TRAINING

### Certifications

Introduction to Quantum Computing and Programming, [The Coding School](#) | [Qubit x Qubit](#) | [IBM](#)

2020 - 2021

Certified Network Security Specialist (CNSS), [International Cyber Security Institute](#)

May – Jul 2020

QBronze Diploma in Quantum Computing and Programming, [QTunisia](#), [QWorld](#)

Oct – Nov 2020

JAVA Application Development, [University of Colombo School of Computing](#)

Jan – Mar 2019

### Summer Schools

Sagan Summer Workshop x2, [NASA Exoplanet Science Institute](#) | [Caltech](#)

2022, 2023

Qiskit Global Summer School x3, [IBM](#)

2021, 2022, 2023

Summer School in Planetary Sciences, [University of Science and Technology of China](#)

Jul – Aug 2022

### Other

Data Science Masterclass, [Data Think Professional](#)

Jul - Sep 2022

CubeSat Development and Ground Station Control - [SEDS Pera](#) | [IEEE MTT-S](#) | [Orion Space](#)

May – Jun 2021

CubeSat Workshop and Lecture Series - [SEDS Pera](#) | [Orion Space](#) | [University of Peradeniya](#)

7 – 10 Mar 2020

## VOLUNTEERING

**Contributor & Event Organizer** (2016 – Present)

- Annual CSR Projects for donating educational materials to rural schools (5 schools: More than 1000 students)
- Orbit'21 Asteroid Search Campaign (100+ students), NEEDS FOR NEEDY book donation camp (~100), Water rocket competitions (~50), Astronomy workshops (~100), Inter-school STEM competitions and STEM exhibitions (100-500+)

**Citizen Scientist** (2020 – 2021) - Provisional Asteroids discovered: 2021 CH23, 2020 TL54, 2020 QF3, 2020 PX12

**Mentor** (2019 – Present) - School Astronomy Society (NASA Educator Professional Development: 7 credits)

## SKILLS

**Computer** Programming (C, Python, JAVA, Arduino, Qiskit) | Linux | Machine Learning | Data analysis

**Other Technical** CAD/FEM (SolidWorks, SolidEdge, Inventor) | DEM (EDEM, PFC) | MBSE (Capella) | Video Editing (AE)

**Languages** Sinhala (Native) | English (C1 Level)

## OTHER

**Mathematical Art Publications** ↔

**Collatz Feather 2.0** ↔ and **Spiral** ↔

Exhibition of Mathematical Art, Joint Mathematics Meetings (JMM) 2023, Boston, MA, USA (Jan 4-7, 2023)

### Projects in Progress

Two new entanglement-based Quantum Key Distribution protocols (Expected pre-print release in September 2023)