Viduranga Shenal Landers

HIGH SCHOOL GRADUATE

Wattala, Sri Lanka | Date of birth : 27/02/2002 | Nationality : Sri Lankan
✆ +94 761676711 | ✉ vidurangalanders@gmail.com
in viduranga-landers | 🔗 vidurangalanders.github.io

A highly motivated student with strong leadership qualities who is constantly seeking new challenges to push the limits of his knowledge. Contributes to the development of the space industry in Sri Lanka by initiating space projects for local space communities. Actively seeking for academic and research opportunities in astronautics.

Education

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

GCE Advanced Level - 2022(2021) - Physical Science Stream

- 2 A passes in Chemistry and Gen. English, 1 B pass in Physics and 1 C pass in Combined Math
- All Island Rank: 2258 *(94th Percentile)*

SAT Reasoning Test - Dec 2022

- 1490: 790 Math & 700 EBRW *(97th Percentile)*

GCE Ordinary Level - 2018

- 9 A passes

Activities

• President - Astronomy Club • Secretary - Social Services Association • Exec. Member - Aeronautical Club

Introduction to Quantum Computing, The Coding School | Qubit x Qubit | IBM (2020 – 2021)

• One year (two semester) program on quantum mechanics and programming quantum computers
• Grade: 100/100

HONORS AND AWARDS

17th Place and Finalist Team, European Rover Challenge (team) *2022*
European Rover Challenge is the world's largest analog Mars rover competition. Taprobane v3.0 finished 17th in the preliminary round of 2022 and qualified for the final round in Poland.

Advanced Achievements, IBM Quantum Challenge *2022, 2021*
Completed all hackathon tasks in Spring 2021, Fall 2021, Spring 2022, and Fall 2022 to earn four advanced achievements at the IBM Quantum Challenges for quantum computing.

Top Scorer, IBM Quantum Challenge Spring 2021 *2021*
Designed the least expensive quantum circuit for the final task to become a top scorer.

Distinction Award, Singapore Space Challenge 2021 (team) *2021*
Singapore Space Technologies Ltd organizes the Singapore Space Challenge. My team's (SEDS Lunarbot) lunar rover design (SPIDER) became runners-up and was awarded the distinction award.

Global Nominee, NASA Space Apps Challenge 2020 (team) *2020*
Space Apps is an annual two-day space hackathon. My team (Space Hunters) created an AI-based chat bot and represented Space Apps Colombo at the international hackathon winning the Global Nominee award.

Silver Award, Hong Kong International Mathematics Olympiad Heats *2020*
Earned the Silver award becoming the runner-up in Sri Lanka and securing the 97th place globally in the senior secondary category of the Hong Kong International Mathematics Olympiad heat rounds.

Gold Medal, Sri Lankan Astronomy and Astrophysics Olympiad *2019*
Secured seventh place in the Sri Lankan Senior Astrophysics Olympiad, earning a gold medal, and qualifying the national team for the 2020 International Astronomy Olympiad (cancelled due to COVID-19).

High Distinction and Honorable Mention, Sri Lankan Mathematics Competition *2021, 2019, 2018*
Received High Distinction in 2021 and 2018 and Honorable Mention in 2019 at Sri Lankan Mathematics competitions, and qualified for the International Math Olympiad 2021 National B Team selection pool.

RESEARCH EXPERIENCE

Co-Lead

HOPE - ACHIEVED | Space Exploration Project Group | Space Generation Advisory Council (Jan 2023 – Present)

- An year-long research project of the Space Generation Advisory Council's ACHIEVED initiative
- Co-leading a research team in the design of a CubeSat mission to Uranus

Project Lead

Nexus Aurora Corporation (Aug 2022 – Present)

- US based space research organization and an open-source space project incubator
- Leading a six-member international team in the research and development of a planetary penetrator device (Soil Penetration Darts) to reduce the cost of obtaining deep soil samples from the Moon
- Creating mechanical designs and computer simulations for dart impact and soil penetration

Remote Student Team Lead

Global Lunar Expedition for Everyone (May 2022 – Present)

- A NASA Artemis Challenge that aims to send 500 student developed ChipSats to the Moon
- Leading the mission operations planning and programming phases of two LunaSats with a five-member team.
- Organizing Science outreach activities in the local region for the general public and students

Systems Engineering Group Lead

Robotics and Rover Division of SEDS Sri Lanka (Jan 2022 – Present)

- The Robotics and Rover Division is currently developing Taprobane, Sri Lanka's first ever analog Mars rover.
- Leading a four-member team in the systems engineering group
- Managing a 20+ member team in the subsystem teams of Taprobane technical team.
- Introducing and implementing systems engineering principles to the ongoing project from ground-up.
- Maintaining project technical documentation

Team Leader

Lunarbot (Feb 2020 – Present)

- Founder of Lunarbot, a local student team that aims to develop innovative instruments for planetary rovers
- Among the projects are:
  - SAWS: *A grouser adjustable wheel system for space exploration rovers*
  - SAWSV2: *10 inch version of SAWS integrated to the MDRS SSAM rover of Nexus Aurora*
  - SWORD: *An extendable drilling mechanism for deep drilling on the lunar surface*
  - SPIDER: *Runners-up Lunar rover concept at the Singapore Space Challenge 2021*
- In 2021, Lunarbot collaborated with Nexus Aurora to produce eight prototypes of the SAWS system, testing six on the SSAM rover at the Mars Desert Research Station and two on an Axel rover configuration in Sri Lanka.
- A collaboration with Orbit Logic is underway for a technology demonstration of the SSAM rover, with a possible funding opportunity from NASA's Jet Propulsion Laboratory.
- Creating mechanical designs, terramechanic simulations and structural simulations

Structures & Thermal Subsystem Lead

RAISE - ACHIEVED | Space Exploration Project Group | Space Generation Advisory Council (Jan 2022 – Sep 2022)

- An year-long research project of the Space Generation Advisory Council's ACHIEVED initiative
- Designed the model of the spacecraft
- Designed and selected sample collection equipment, sample storage equipment and other mechanisms

WORK EXPERIENCE

Writer / Programmer (Part Time), **Fiverr** (Mar 2022 – Present)

• Working on assignment writing, data science and programming projects for a local network of writers

Technical Assistant (Part Time), **Deluxe Traders Pvt Ltd** (Oct 2019 – Aug 2020)

• Aided repair and configuration of 100+ work laptops for offices in Colombo

PUBLICATIONS

Conference Papers

Soil Penetration Darts (SPDs) for Deep Soil Sampling (IAC-22,A3,IPB,30,x72590)
IAF Space Exploration Symposium, 73rd 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)
IAF Space Exploration Symposium, 73rd 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)
49th Student Conference, 72nd International Astronautical Congress in Dubai, UAE (Oct 25-29, 2021)
Landers V., Pathirana O., Pieris J., Ranasinghe S.

Conference Papers in Review

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,x76984)
30th IAA Symposium on Small Satellite Missions, 74th International Astronautical Congress in Baku, Azerbaijan (Oct 02-06, 2023)
Landers V., Campioli S., et al

A Planetary Penetrator-integrated Soil Sample Collection Instrument for Deep Soil Sampling (IAC-23,D1,3,x78033)
IAF Space Systems Symposium, 74th International Astronautical Congress in Baku, Azerbaijan (Oct 02-06, 2023)
Landers V., Pathirana O., et al

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

Certified Network Security Specialist (CNSS), International Cyber Security Institute (May 2020 – Jul 2020)
• Certificate course on Network Security administration

QBronze Diploma in Quantum Computing and Programming – QTunisia, QWorld (Oct 2020 – Nov 2020)
• Remote training program on quantum computing

JAVA Application Development, University of Colombo School of Computing (Jan 2019 – Mar 2019)
• Three months training program on JAVA SE

Summer Schools and Workshops

Summer School in Planetary Sciences, University of Science and Technology of China (31 Jul – 06 Aug 2022)
• Remote lecture series on a variety of planetary science topics

Sagan Summer Workshop 2022, NASA Exoplanet Science Institute | Caltech (25 – 29 Jul 2022)
• Remote lecture series and hands-on workshop in exoplanets and astrometry using GAIA Data Release 3

Qiskit Global Summer School 2022 on Quantum Simulations, IBM (18 – 29 Jul 2022)
• Remote lecture and lab series in quantum computing and quantum simulations using Qiskit

Qiskit Global Summer School 2021 on Quantum Machine Learning, IBM (12 – 23 Jul 2021)
• Remote lecture and lab series in quantum computing and quantum machine learning using Qiskit

CubeSat Development and Ground Station Control - SEDS Pera | IEEE MTT-S | Orion Space (May 2021 – Jun 2021)
• Remote lecture series on CubeSat technologies

CubeSat Workshop and Lecture Series - SEDS Pera | Orion Space | University of Peradeniya (7 – 10 Mar 2020)
• Three day workshop on CubeSat basics and technical demonstrations

PROFESSIONAL AFFILIATIONS

Space Generation Advisory Council (2021 – Present)
- ACHIEVED-HOPE research team Co-lead (Jan 2023-Present)
- Delegate of the Space Generation Congress 2023
- ACHIEVED-RAISE research team member (Jan 2022 – Sep 2022)
- Member of the Space Exploration Project Group (2021 – Present)

Students for the Exploration and Development of Space (SEDS) Sri Lanka (2020 – Present)
- Systems Engineering Group Lead of the Robotics and Rover Division (Jan 2021 – Present)
- Coordinator for the Juniors Chapter (Mar 2021 – Jun 2022)

Volunteering

Contributor & Event Organizer (2016 – Present)
- Annual Family CSR Projects for donating educational materials to rural schools

Citizen Scientist (2020 – 2021)
- Asteroid Search Campaigns by the IASC and Pan-STARRS
- Chief Organizer and Mentor of Orbit'21 Asteroid Search Campaign
- Provisional Asteroids discovered: 2021 CH23, 2020 TL54, 2020 QF3, 2020 PX12

Mentor (2019 – Present)
- Astronomy Society of D.S.Senanayake College

(NASA Educator Professional Development: 7 credits)

Organizing Committee Member
- JUNIOR ASTRO NIGHT 2021 – Astronomy workshop by SEDS Sri Lanka (2021)
- ESPER'20 – Annual Inter School Science Quiz Competition (2020)
- NEEDS FOR NEEDY – book donation camp at Passara Madya Maha Vidyalaya (2019)

Blood Donor (2020 – Present)

Skills

Programming	Python | JAVA (basic) | QASM (basic) | Data Analysis | Machine Learning (basic)
Other Technical	CAD/FEM (SolidWorks, SolidEdge, Inventor) | DEM (EDEM, PFC) | Video Editing (After Effects)
Soft Skills	Leadership | Project Management |Teamwork | Research | Writing | Science Communication
Languages	Sinhala (Native) | English (C1 Level)

Others

Mathematical Art Publications

Collatz Feather 2.0
Exhibition of Mathematical Art, Joint Mathematics Meetings (JMM) 2023, Boston, MA, USA (Jan 4-7, 2023)

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

Mathematical Art Portfolio

https://vidurangalanders.github.io/fractal_art/