

Swarup Tripathy

Vellore, Tamil Nadu, India

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 <https://curovearth.github.io>

EDUCATION	Vellore Institute of Technology , India 2019 - 2023*
	<ul style="list-style-type: none">• Candidate for Bachelors in Electrical and Electronics Engineering (<i>EEE</i>) CGPA: 8.22/10• Recipient of Special Achievers Award for the year 2021.
	ASN Senior Secondary School , India 2007 - 2019
	<ul style="list-style-type: none">• High School major subjects: Physics, Chemistry, Mathematics and Physical Education Percentage: 90.2%

RESEARCH INTERESTS

I am broadly interested in the field of robotics, with particular emphasis on biomimetics, or biomimicry, origami-based systems, and soft robotics. My future research interests are shaped by the emerging trend towards nature-inspired system mechanisms incorporated into space engineering.

In addition to robotics, one of my past research projects investigated building a mathematical model for a conscious Turing machine. Furthermore, I am very excited to contribute the most advanced technological concepts to the space sector.

RESEARCH & INDUSTRIAL EXPERIENCE	Space Applications Centre, ISRO - Research Intern Oct, 2022 - Present <i>Ahmedabad, India</i>
	To deduce a path planning algorithm for a free flier robot in a micro-g environment.
	Neuromatch Academy - Research Intern July, 2022 <i>Remote</i>
	I was part of "Draniki Pod" mentored by Ariel Ghislain Kemogne Kamdoum. Our pod worked on the topic "Increasing Robustness of Deep Network Model of Neurological Disease" on the 'Alzheimer Dataset' where we studied different aspects of data augmentation techniques to make our model more robust.
	Wolfram Research - Wolfram Science Intern Oct, 2021 - June, 2022 <i>Remote</i>
	I was assigned to help with Wolfram Language programming projects, data entry and other technical coordination or administrative tasks relating to Wolfram Science projects.
	Wolfram Research - Summer Researcher June, 2021 - July, 2021 <i>Remote</i>
	Under the guidance of <i>Christopher Wolfram</i> , I was assigned to build a simple mathematical architecture for Conscious Turing Machines based on the paper "A theoretical Computer Science [TCS] Perspective on Consciousness" by Manuel and Lenore Blum. My project deals with the implementation of dynamics of Conscious Turing Machines and rather than dealing with a conscious state.
	STAR Labs Surat - Student Trainee April, 2021 - May, 2021 <i>Remote</i>
	I started as a Design Intern and was progressively assigned as a System Engineer for the team to work collaborately on designing a Static Test Pad. I along with the team brainstormed and ideated on several nature inspired designs which could be incorporated into our system mechanism.

TECHNICAL SKILLS

Programming Languages

Python, Wolfram language (Mathematica), Matlab, C++

Tools & Technologies

- *Hosting Platforms:* Github and Bitbucket
- *Version Control System:* Git
- *Augmented Reality:* Spark AR
- *Frameworks:* Pytorch for deep learning
- *Electronics Softwares:* Arduino IDE, Proteus, Eagle EDA and KEIL
- *Development Board:* Arduino and NodeMCU for IOT
- *CAD Modeling:* Autodesk Fusion 360

KEY COURSES

Control Systems, Signals and Systems, Engineering Optimization, Digital Signal Processing, Network Theory, Special Electrical Machines, Engineering Electromagnetics, Analog and Digital Circuits, Electric Vehicles, VLSI Design, Introduction to Shell Scripting, Neural Network and Fuzzy Control.

TEACHING EXPERIENCE

Octafest'21

Oct, 2021

Wolfram Language Mentor

As part of Hacktoberfest, the event was organised by IEEE | NIT Raipur in association with IEEE Bombay.

HONORS & AWARDS

INTERNATIONAL

NASA Solve, The Deep Space Food Challenge

AURA-ES, 2021

Winner of Phase-1 amongst the top 10 International teams and the only team from India

"AURA-ES", A retractable life-support system engineered for Earth and Space which is designed to encompass a unique approach of plant farming along with advanced plant processing unit with a self-sustaining environment aiming to reduce the ecological footprint and thus making a positive impact.

HackMIT

SERV-E, 2021

ACV Solutions sponsored hack winner themed 'Re-Think Automotive'

I and my 'Team π ' were part of the annual hackathon hosted and organised by Massachusetts Institute of Technology where we proposed an autonomous robot with non holonomic arm having 4 degrees of freedom to help elderly people.

Hack Davis

Pi-Kart, 2021

Best Hardware Hack sponsored by Digi-Key

Participated in UC Davis's premier hackathon for social good, we aimed to build a bluetooth-controlled kart that would connect with the user's cell phone to give them access to control their kart. An electronic device located in front of the cart is in charge of scanning the QR codes on the shopping items, which will automatically display the total amount to the biller.

HackTX

Pi: Unmute Yourself, 2020

Secured 3rd position in Best Overall Hack & Best Hardware Hack sponsored by Digi-Key

I and my 'Team π ' were part of the annual hackathon organized by University of Texas where we proposed a hardware project empowering people having disability of hearing and speaking loss.

IvyHacks

T3E aka The Third Eye, 2020

Best Healthcare Hack & Best Hardware Hack sponsored by Digi-key

The prototype made as part of the joint hackathon hosted by 6 Ivy League universities aimed to empower people who are blind. The hardware incorporates the use of Google TTS and YOLO to identify objects at a particular distance and distinguish them, making the user aware of their surroundings.

NATIONAL

Siemens Healthineers

MyoUV & Origone, 2021

Secured 2nd position in the Innovation Think Tank Program

As part of theme 'Countering Infectious Diseases' our team proposed MyoUV and Origone for 'National Pandemic Preparedness Plan'.

IITB-ISRO-AICTE Mapathon

Team Mapnifique, 2021

Winner declared by FOSSEE Project, IIT Bombay in association with ISRO

The team was involved in mapping land use/ land cover and change detection using remote sensing and GIS techniques is a method for classifying Maximum Classification method whose results show that Scrubland constituted the most extensive type of land use/ land cover in the study area. We utilised the land types taking help from Bhuvan and ISRO satellite's data to give final proposal for the mapathon. The software which was used was QGIS where we focused on Visakhapatnam District.

Infosys, Summer of Ideas

Virtual Interviewer, 2020

Finalist

The team had proposed a virtual interviewing platform that reads your facial expressions throughout the interview and gives a detailed analysis of them at the end.

SOCIETAL IMPACT WORK

Project AURA-ES as part of the Deep Space Food Challenge organized by NASA and CSA, and administered by Methuselah Foundation.

- AURA-ES: Advanced Unit for bio-Regenerative Abode for Earth and Space
- The problem statement included:
 - Help fill food gaps for a crew of four for a three-year round-trip mission with no resupply
 - Improve the accessibility of food on Earth, in particular, via production directly in urban centers and in remote and harsh environments

PRESS COVERAGE

- "**NASA announces Phase-1 challenge winners for the Deep Space Food Challenge**" NASA, 2021
 - Team π, Ghaziabad, India - International Winner
- "**Winners of Phase-1 Deep Space Food Challenge**" **Methuselah Foundation, 2021**

ACTIVITIES

- Writing Blogs: [*Integral_t*](#)
- I am very fascinated with the art of dancing especially Hip-hop with a mix of Bollywood.
- To refresh myself, I am usually engaged in Cycling and playing Football.
- I consider myself as an aesthete so I tend to capture my surroundings: [*Swarup_1.618*](#)

ACADEMIC REFERENCES

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