SAI SOURYA VARENYA KOVVALI

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WORK EXPERIENCE

PROJECT MANAGER & LEAD
(Oct 2015 - Present)
TEAM ANVESHAK, IIT MADRAS

- Lead the **Chassis Design** for the first version of the rover - **Aurora**
- Headed the team & participated in **University Rover Challenge 2017** at MDRS, Utah, USA
- Conducted crowdfunding campaign raising **$2700 (INR 1.75 Lakhs)**
- Developed **Finance Portal** for automated tracking of team expenditure
- Initiated and lead the Media Team – responsible for **Graphic Design**, **Video Composing** and **Webpage Development & Maintenance**
- Co-heading the construction of **TeRA – Tele-operated Robotic Arm**, a unique manipulator constructed for rover with end-to-end analysis

UNDERGRADUATE RESEARCHER
(Jun 2017 – Present)
R2D2 LAB, IIT MADRAS

Electro-mechanical Stance Control Orthoses

- Devised an **electromechanical clutch-based mechanism** for achieving event-based locking of the orthoses & performed FEA for load test
- Prototyped a sample knee joint with necessary electronics for validating the mechanism and the control strategy

Passive Stance Control Orthoses

- Developed a **purely mechanical knee joint** mechanism which leverages the human weight to achieve selective locking during a gait cycle.
- Improved **affordability and ease of assembly** by constructing an inter-lock based **fastener-free** joint manufactured fully using laser-cutting
- Validated the mechanism using FEA for load testing and **fabricated multiple knee joints for evaluating realistic performance**

PRODUCT DEVELOPMENT INTERN
(Jan 2018 - Present)
SKILLVERI PVT. LTD.

- Designed and fabricated **Arc Welding Torch** for **VR simulator** setup that utilizes a **retracting rod mechanism** for the electrode feed
- Integrated and programmed microcontroller for PID controlled retraction rate and IMU orientation feedback

UNDERGRADUATE RESEARCHER
(Jan 2017 – Oct 2017)
ROBOTICS LAB, IIT MADRAS

GraspMan

- Designed and fabricated a **redundant serial chain manipulator** with dual grippers enabling **locomotion, grasping and in-hand manipulation**
- Experimented on the grasping force for objects of different sizes and shapes to establish a parameter for comparison across grippers

PRODUCT DEVELOPMENT INTERN
(Dec 2015 – Feb 2016)
DETECT TECHNOLOGIES

- Ported **thermal camera core to GoPro form-factor** for compatibility with existing gimbals on surveillance drones
- Adopted **iterative designing and manufacturing cycles** for achieving accurate tolerances and optimized weight distribution

INTERESTS

Robotics | Research | Music | Product Design | Exoskeletons | Manipulators | Video Making

EDUCATION

BACHELORS OF TECHNOLOGY
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
Major - Mechanical Engineering
Minor - Robotics
CGPA – 9.51 / 10

SKILLS

	PROFICIENT
CAD	Fusion 360, Inventor, Creo
Programming	Python, Java, C#
Scientific	MATLAB, Mathematica
Web Dev	HTML/CSS, PHP, Jekyll
Video Editing	DaVinci Resolve
	NOVICE
3D Modeling	3DS Max, Mudbox
Game Dev	Unity, Unreal Engine

PUBLICATIONS

GraspMan – A Novel Robotic Platform with Grasping, Manipulation, and Multimodal Locomotion Capability
Accepted - ICRA 2018

PATENTS

Nagamanikandan Govindan, Sai Sourya Varenya Kovvali, Karthik Chandrasekaran, and Asokan Thondiyath, '**A versatile hybrid robotic system for multimodal locomotion and grasping**', Application Number: 201841008257, filed on 06/03/2018

ACHIEVEMENTS

1st Position
IoT segment, Inter IIT Tech meet 2016

Demonstrated **project Chronos** – a suite of smart home devices engineered for a smart & connected ecosystem

2nd Position
Product Dev Challenge, TechSoc 2017

Exhibited a scalable and affordable security solution for dormitory rooms