ANTARIKSH NARAIN

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EDUCATION

- **Master of Science**, Computer Science with Intelligent Robotics, University of Southern California, GPA 3.44/4. **July 2019-May 2021**
- **Bachelor of Technology**, Computer Science and Engineering, Vellore Institute of Technology, GPA 8.94/10. **July 2013-May 2017**

RESEARCH EXPERIENCE

Space Engineering Research Center, Graduate Student Researcher   **September 2019-Present**
- **Publications:** Generation-II Lunar entry approach platform for research on ground: A Novel Concept For Low Cost, **High Longevity Autonomous Operations** on the moon - 71st IAC.
- Build a Lunar lander (LEAPFROG) prototype with a team as part of NASA's Artemis student competition creation initiative.
- Design lander simulation environment using ROS2 and Gazebo to test flight software and host competition challenges.
- Write hardware and software libraries to run flight control software, process sensor data and communicate with ground station.

Technocrats, Student Programmer   **August 2014-May 2016**
- Developed framework to enable robot control with a PS4 controller and android application using bluetooth communication.
- Designed algorithm to power differential drive and PID controller for robot's base motors.
- Integrated distance sensors, color sensor and object detection utilizing pi-camera for collision avoidance system.

PROFESSIONAL EXPERIENCE

Microsoft, Software Developer   **July 2017-May 2019**
- Created automation scripts using .Net Web Jobs, Azure logic app and Azure functions to streamline business requirements.
- Coordinated and integrated vendor services into application with O365 security and authentication.
- Configured and customizing Dynamics 365 environment for businesses with custom plugins and client side scripts.

Ariose Software, Software Developer Intern   **January 2017-June 2017**
- Developed application to monitor system resources and processes running on company servers.
- Added functionality to create custom rule scripts for individual servers which can be updated in realtime from monitoring server.
- Structured daily reports to be shared via email and report policy violations to system administrator.

R2 Robotics, Engineer Intern   **November 2015-April 2016**
- Developed software to communicate and command robot on RF communication and send real-time video feed.
- Fabricated a scissor lift to elevate the robot to align equipment and added track wheels to move it in rough terrain.
- Designed user interface for managing robot and show real-time telemetry.

PROJECTS

Estimating Arrival time for a Hydraulic Conductivity Map   **September 2020-November 2020**
- Developed parallel computation framework using OpenMP and convolutional neural network wtih keras in python and C++ to estimate t-95 for a hydraulic conductivity map. The system was trained on USC's HPC system and obtained a correlation of 81.1%.

Geo Linked Attachments and Tags   **January 2017-May 2017**
- Created an Android application where users can tag messages to objects in environment. These messages are retrieved based on localization of user's position and camera feed with HAAR cascades to identify tagged objects.

Content Recommendation for Articles   **January 2016-May 2016**
- Designed an application in python to recommend related articles from dataset and web based on input write-up. The software uses natural language processing (using nltk) with a web crawler to search and recommend content to user.

Gesture Recognition Interpretation and Transmission   **July 2015-November 2015**
- Built an application on MATLAB to recognize different hand gestures and interpret input as actions or words. The software identifies handwritten words and shares it as text on the network by a messaging application.

Regulated IoT   **July 2015-November 2015**
- Synthesized a hardware prototype to convert a normal switchboard to IoT enabled. It uses relays to supplant switches, optocoupler to replace regulator and a current sensor to calculate power usage. The web application allows users to control voltages remotely.

TECHNICAL SKILLS

- **Programming Languages:** C++, C#, Python, MATLAB
- **Robotics:** ROS, Gazebo
- **Frameworks:** Django, MVC, OpenCV, OpenMP, CUDA
- **Database Technologies:** SQL, MongoDB
- **SAAS:** Azure Function Apps, Bot Framework
- **Hardware:** Raspberry Pi, Adruino
- **Sensors:** MPU6050, Laser Sensor, Ultrasonic
- **Operating Systems:** Linux(Distro: Mint), Windows
- **Web Technologies:** HTML, JavaScript, TypeScript, CSS
- **Source Control:** Github, Team Foundation Server