NANDA KISHORE VASUDEVAN

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EDUCATION

National Institute of Technology, Tiruchirappalli August '14 - June '18
B. Tech.(Electrical and Electronics Engineering), 7^{th} semester CGPA: **9.75/10** (till date)
1^{st} rank in class.

TI Matriculation Higher Secondary school June '12 - May'14
Class XII Percentage: **98.67%**
1^{st} rank in school.

RESEARCH INTERESTS

- Multi-Robot Systems
- Artificial Intelligence
- Perception and Navigation

INTERNSHIPS AND RESEARCH

Light Writing with Crazyswarm May '17 - July '17
Viterbi-India Summer Research Program

Mentor: **Prof. Nora Ayanian**, Assistant Professor, University of Southern California

- Developed an algorithm to autonomously perform light painting of text[1] by a swarm of Crazyflie 2.0 quadcopters.
- Generated trajectories for the **swarm of quadcopters** for any font and text using the Crazyswarm codebase with VICON motion capture system for localization.

Exploring Unmapped Terrain with a Multi-Robot System December '16 - Ongoing

Mentor: **Prof. V Sankaranarayanan**, Associate Professor, NIT-Trichy

- Implemented **optimized random algorithm** on a ROS platform for LEGO EV3 differential drive robots to disperse them in the terrain.
- Planned paths for the other robots to reach the goal after one of the robots identifies the goal.

Strategy for Evader in Pursuit Evasion using Reinforcement Learning May '16 - July '16
Science Academies' Summer Research Fellowship

Mentor: **Prof. Aparajita Ojha**, Professor, IIITDM Jabalpur

- Implemented **Q-learning coupled with neural network** in keras for the evader in grid-based pursuit evasion games.
- Obtained a success rate of 92.4%[2] for the evader in simulations.

[1] Text written using light captured by long exposure photograph
[2] Report submitted to Indian Academy of Sciences.

PROJECTS

Soccer Robots July '16 - Ongoing

- Designed and fabricated four omnidirectional soccer playing robots in compliance with the **RoboCup Small Size League (SSL) rules**.
- Controlled the robots from a central master incorporating feedback from overhead cameras.

Sound Source Localizing All Terrain Hexapod Nov '15 - Feb '16

- Developed a **six-legged, all-terrain, disaster management robot** inspired from R-HEX developed by Boston Dynamics.
- Developed algorithms to enable the robot to perform walking, stair and ramp climbing, inverted operation (ability to operate even when inverted) and **sound source localization** for locating the victims.

Mobile Robotics Development Platform Sept '15 - Feb '16

- Developed a robotics research and development platform based on ROS with low-cost sensors like Kinect, Rotary Encoders and IMU (Inertial Measurement Unit).
- Endowed with the ability to map the environment (2-D mapping), localize itself in the map and navigate in the environment (**Simultaneous Localization and Mapping**).

TECHNICAL STRENGTHS

Programming Languages	C, C++, Python, MATLAB, JavaScript, PHP, Shell scripting, LaTeX
Libraries	ROS, OpenCV, Keras, TensorFlow
Softwares	Gazebo, Git, Simulink, TINA, PSpice

ACADEMIC ACHIEVEMENTS

- One of the 19 students selected from India for **Viterbi-India Summer Research Program 2017**[3] sponsored by USC Viterbi School of Engineering and Indo-US Science and Technology Forum.
- Recipient of **Science Academies' Summer Research Fellowship**[4], 2016.
- Recipient of **S J Chainulu Medal of Excellence** during institute day 2016 for securing **1st rank** in the department in the first year.
- Felicitated for securing overall **3rd rank** across departments in the first year during institute day 2016.

CO-CURRICULAR AND EXTRACURRICULAR ACTIVITIES

- **Vice-President, RMI (Robotics and Machine Intelligence)**, the official robotics club of NIT-Trichy.
- **Treasurer, Electrical and Electronics Engineering Association** affiliated to the department of Electrical and Electronics Engineering, NIT-Trichy
- Awarded the **3rd position** in Sangam, the prestigious **innovation challenge**, during Pragyan '16 - the ISO certified Annual International Techno-Managerial Festival of NIT Trichy for the project "Sound Source Localizing All Terrain Hexapod".
- Conducted 5 different **hands-on workshops** on the basics of robotics, image processing, and machine learning.

[3] Homepage of Viterbi-India Summer Research Program
[4] Homepage of Science Academies Summer Research Fellowship Programme 2016