

# N. Suresh Krishna K

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## EDUCATION

### MAHINDRA ÉCOLE CENTRALE

BTECH IN ELECTRICAL &  
ELECTRONICS ENGG  
2016 - 2020 | Hyderabad, India  
First Class

## CERTIFICATIONS

Robotics: Aerial Robotics  
Robotics: Computational Motion  
-Planning  
Robotics: Mobility  
Robotics: Perception  
Robotics: Estimation and Learning  
Modern Robotics  
Machine Learning  
Crash Course Electronics and PCB  
-Design  
Signal Processing Onramp

## SKILLS

### PROGRAMMING

C • C++ • Python • Javascript  
MATLAB • Octave • Julia • bash  
HTML/CSS • Java • Kotlin  
Verilog • Assembly for x86

### CAD

Fusion 360 • Inventor  
E-CAD:  
KiCAD • EAGLE • Circuitmaker

### SIMULATORS

Simulink • LTSpice • ngspice  
Unity3D • Gazebo • CoppeliaSim

### HARDWARE

STM32F3 • ESP8266 • ATmega 328p |  
2560 • Raspberry Pi Zero W | Pico  
NVIDIA Jetson Nano • Intel - NUC

### MISC SOFTWARE

STM32Cube • AtmelStudio  
ROS1 Kinetic | Neotic • PlatformIO  
Arduino • FreeRTOS(Kernel)  
Keil MDK •  $\text{\LaTeX}$

## ACTIVITIES

- Participated for Competitions like  
SAUVC-2020, e-Yantra Robotics and  
Google Kickstart.  
- Volunteered for the org committee at *The  
4th IEEE International Symposium on Smart  
Electronic Systems (iSES 2018)* & *National  
DD-Robocon(2019)*

## EXPERIENCE

### ETERNAL ROBOTICS | ROBOTICS ENGINEER

Dec 2021 - Present | Hyderabad, India  

- Building feedback controllers, state estimators and filters for perception systems in low level firmware for industrial paint robots.

### MAHINDRA & MAHINDRA | GRADUATE ENGINEER TRAINEE

Mar 2021 - Nov 2021 | Pune, India  

- Studied Vehicle paint profiles to build an interface for Paint robots.
- Built a *Machine learning model* to detect localized defects made during assembly of 100HP car engines using diagnostic data from the *Advanced Cold Test(ACCT)* of engines.

### MAHINDRA ÉCOLE CENTRALE | RESEARCH INTERN

Aug 2020 - Dec 2020 | Hyderabad, India  

- Developed *PID* and *LQR* feedback controllers for a 4-DOF Autonomous Underwater Vehicle.
- Experimented the effectiveness of 27Mhz RF-based control in shallow waters.

### INDIAN INSTITUTE OF TECHNOLOGY | INTERN

May 2019 - July 2019 | Delhi, India  

- Built an automatic guided vehicle with a payload of 100Kg. Designed the entire Electrical system and Interfaced *RP-LiDARs* and encoders for *Odometry*.
- Implemented *SLAM* and *RRT* path planning for navigation to perform autonomous movements between way-points with obstacle avoidance.

## PROJECTS

### AUTONOMOUS UNDERWATER VEHICLE | Co-FOUNDER & ELECTRICAL TEAM LEAD OF RESEARCH GROUP

July 2019 - Dec 2020 | Mahindra École Centrale, Hyderabad, India  
Worked on a group research project on an *Autonomous underwater vehicle*, that acquired funding of 500,000 INR. Designed Electronics & Control systems and built the software stack running a robot behavioural model.

### SELF-ORIENTING GOUGH-STEWART PLATFORM | UNDERGRADUATE RESEARCHER

Aug 2019 - Aug 2020 | Mahindra École Centrale, Hyderabad, India  
A 6-DOF Gough-Stewart Platform, capable of self-correcting platform orientation using an Inverse-Kinematics model and a Kalman filter to filter noisy IMU signals.

### BATTERY SOC ESTIMATION USING AN EKF | UNDERGRADUATE RESEARCHER

Aug 2019 - Dec 2020 | Mahindra École Centrale, Hyderabad, India  
Implemented an Extended Kalman Filter on a STM32 MCU to compute the battery SoC using a Hall current sensor while accounting for non-linear system dynamics.

## PUBLICATIONS

- [1] N. S. K. Kondepudi. Development of a mobile robotic platform, 2019. Poster presentation at Undergraduate Research Symposium, Mahindra École Centrale.
- [2] S. K. K. Nalla, N. Pattar, N. Patnaik, P. Mehta, S. S. V. M. Tripuraneni, S. M. Surabathula, N. S. K. Kondepudi, and S. Uppapalli. Systems engineering v cycle approach for design and development of autonomous underwater vehicle. In *OCEANS 2021 San Diego-Porto Conference & Exposition*, 2021.