

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 Specialization by University of
-Pennsylvania
Modern Robotics
Machine Learning
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 • Git
Keil MDK • \LaTeX • Linux

ACTIVITIES

- Participated in 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 and locomotion systems in low level firmware for industrial 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(ACT)* of engines.

MAHINDRA ÉCOLE CENTRALE | RESEARCH INTERN

Aug 2020 - Dec 2020 | Hyderabad, India

- Developed *PID* and *LQR* feedback controllers for a 4-DOF AUV.
- 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 along with *ROS middleware* 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.