N. Suresh Krishna K

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EDUCATION

MAHINDRA ÉCOLE CENTRALE
BTech in Electrical & Electronics Engg
2016 - 2020 | Hyderabad, India
School of Engineering
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
NVDIA Jetson Nano • Intel - NUC

MISC SOFTWARE
STM32Cube • AtmelStudio
ROS1 Kinetic | Neotic• PlatformIO
Arduino • FreeRTOS(Kernel)
Keil MDK • LaTeX

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
June 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 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.