Siddharth Ramesh

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Education

2013–2017 **Nitte Meenakshi college of engineering**.

Bachelor of Engineering, Information science
- **Relevant courses**: Database Management,Computer Architecture, Finite automata, Algorithms and Data structures, UNIX, Java, Operating systems, C & C++
- **GPA**: 8.89/10.0

2011–2013 **Kendriya Vidhyalaya IISc**.

High School
- **Major**: Computer science **Aggregate** 83%

Experience

June 2017 – Present **Research Assistant** , Robert Bosch Center for Cyber-Physical Systems, Indian Institute of Science, Bengaluru .

Project: Autonomous Navigation of drones
- Ultra wide band Beacon localization platform
  - Developed a hardware and software platform for UWB beacons (Decawave DW1000). Interfaced the DW1000 chip, developed wrapper libraries for various microcontrollers and single board computers.
  - Implementation and testing time of flight based SLAM algorithms for drones using the UWB beacons.
  - Integration of UWB beacons as apart of smart infrastructure to aid drone navigation.
  - **Applications**: Warehouse inventory management ,Heavy duty Vehicle inspection via drones aided by UWB beacons. (videos)
  - Implementaion of custom MAC layer protocols for the DW1000 chip.
- Case study and experimentation of drone localization with Wifi RSSI fingerprinting technique.
- Developed android application to assist autonomous navigation for drones.
- Developed a firm grip over ROS framework and middleware.
- Developed a code to implement vision based navigation for drones at night, assisted by LED arrays.

Advisor **Dr Chiranjib Bhattacharya**

June–August 2015 **Summer Intern**, Department of electronic systems and Engineering, Indian Institute of Science, Bengaluru.

Data Visualization
- Developed a code (Processing 2.x) to visualize, monitor and analyze the behavior of Zigbee beacons under different MAC protocols.

June–August 2016	**Summer Intern**, DEPARTMENT OF ELECTRONIC SYSTEMS AND ENGINEERING, INDIAN INSTITUTE OF SCIENCE, BENGALURU.

Unsupervised Machine Learning
- A case study to compare and evaluate clustering algorithms
- Developed a code (PYTHON) to implement Kmeans and DBSCAN clustering algorithm
- Compare results of Kmeans and DBSCAN clustering on various data sets.

Projects

June–August 2015	**Autonomous Vehicle Platooning, (Undergraduate Thesis)** . Its a technology where autonomous cars in an urban traffic communicate with one another to increase safety,fuel efficiency,road capacity and prevent accidents by reducing human error. A hardware prototype was implemented using RC cars and a software simulation was shown using a tool called SUMO(Simulation of Urban MObilty) as a demonstration.
Course Projects	**Song Mapper** : Implemented a song mapper application in $C++$ to dynamically create a playlist based on the user's mood.
	Smart audio Visualizer : Developed an audio visualizer using microcontrollers and LED arrays to create illumination patterns based on input audio signals.
	Mini Radio Station : Developed a short range FM base station to broadcast audio and receive them using standard FM transmitters

Computer skills

- **Programming Knowledge**

  Expert:
  Python, $C++$, C

  Intermediate:
  R,JAVA, SQL,LATEX

- **Intermediate Knowledge**

  – ROS   – Android Studio
  – Gazebo – Audacity
  – Kicad   – GIMP

Volunteer experiences

- **Dream school foundation**: Volunteered a two day teaching workshop as a part of project Muskaan, for underprivileged public school students to increase their exposure about STEM academics.
- **ATAL tinkering lab (NITI Aayog)**: Represented Robert Bosch Center for Cyber-Physical Systems (IISc) in association with Kendriya Vidyalaya-IISc
  - Volunteered to set up the tinkering lab in school campus and conducted introductory hands-on work shop for students.

Extra Curricular Achievements

- Certified in basic Skiing
- Held position of Sports captain (High School)
- Represented school at Regional level Football
- Head of master of ceremony and active member of cultural team (College)

Hobbies

- Sports :Football, Badminton, Table Tennis ; Playing Guitar ; Sketching