

Nabarun Pal

Software Developer | Open Source Enthusiast | Systems Enthusiast

[in linkedin.com/in/palnabarun](https://www.linkedin.com/in/palnabarun) github.com/palnabarun
+91 8755514415 @ pal@nabarun.in
npal@mt.iitr.ac.in
Indian Institute of Technology Roorkee, Uttarakhand



Education

Pursuing	8.451, Top 5 in class, Bachelor of Technology, Final Year Metallurgical and Materials Engineering with Minors in Computer Science, Indian Institute of Technology, Roorkee
2014	89.0, AISSCE Central Board of Secondary Education, Lawrence and Mayo Public School, Kota
2012	10.0, AISSE Central Board of Secondary Education, Sri Krishna Mission School, Agartala

Internships

May 2017	Software Development Engineer, Rorodata Technologies, Hyderabad
July 2017	<ul style="list-style-type: none">Built a universal data science platform for enabling the data scientists to deploy and scale ML applicationsSystemized cloud based automatic data extraction and storage from IoT devices reducing development time by 80Delivered microservices architecture for running, storing and logging scheduled jobs by usersCo-authored firefly - an open source function-as-a-service framework which is used as the backend for various platformsPresented my internship projects at PyData Delhi 2017, PyCon India 2017 and FOSSASIA Summit 2018 <p>Python Git AWS Bootstrap Raspberry Pi</p>
May 2016	Full Stack Engineer, Gurupriyam Innovations, Bengaluru
July 2016	<ul style="list-style-type: none">Innovated experiential products using Leap Motion Controller and various web APIs like Twitter Stream APIBuilt personalized software interface for a Smart Mirror module which provides relevant information to usersDesigned a productivity enhancement device for offices to track employee sitting time and remind them of stroll breaksDeveloped IoT based Water Saving Automatic Irrigation System controller using 555 timer and ESP8266 <p>Python Twitter API NodeJS ESP8266</p>

Projects

July 2017	Predictive Modelling of Bake Hardening in Minimal Carbon Steels Dept. of Metallurgical and Materials Engineering, IIT Roorkee
April 2018	<ul style="list-style-type: none">Developing a General Purpose Predictive Model for predicting material propertiesMined experimental data points by reading through numerous papers from journals and conferencesInput parameters are composition and macroscopic process parameters like Temperature and Production method of the materialHighly useful in automobile industry as material testing takes a lot of time and economic inputs <p>Python Scikit-learn Matplotlib Pandas</p>
October 2017	Soldier Support Systems Inter IIT Technical Meet 2018, IIT Madras
January 2018	<ul style="list-style-type: none">Designed a localization system for real time position estimation of soldiers in a battlefieldDeveloped a Raspberry Pi based Heads Up Display for displaying the information collected from other usersIntegrated the Health Monitoring, Localization subsystems with the Raspberry Pi based latch on device on each soldier4th position at 6th Inter IIT Tech Meet Madras 2018 out of 23 participating teams from other IIT's <p>Python PyQt ZigBee Raspberry Pi</p>
January 2017	Forecasting Household Electricity Prediction and Comparison of Various Models Dept. of Electrical Engineering, IIT Roorkee
May 2017	<ul style="list-style-type: none">Formed a time series forecasting model using electricity consumption dataset to forecast household electricity usageCompared different models such as Support Vector Machines, Extreme Learning Machines, and Neural NetworksThe model helped to predict electrical energy demand in power grids to optimize global energy generation and storage <p>Python Keras Tensorflow Matplotlib libsvm</p>

Aug 2016 March 2017	Asobi : The Landing Disc Team Robocon IITR, IIT Roorkee <ul style="list-style-type: none"> > Executed Frisbee Throwing Robot with two throwing mechanisms solving the problem statement of ABU Robocon 2017 > Spearheaded software systems for the whole robot including sensor units, computer vision and navigation modules > Delivered navigational algorithms for mechatronic wheeled robots for precise odometry using Optical Flow Sensors > Designed Python and C++ libraries to get data from generic USB Joysticks and DualShock 3 controllers using any Linux based system or Arduino Python C++ OpenCV Arduino Raspberry Pi
Aug 2016 March 2017	Swarm Robotics Models and Robotics Section, IIT Roorkee <ul style="list-style-type: none"> > Delivered 4 micro robots which could perform synchronous tasks like geometrical formations and coordinated motion > Designed system for communication of robot coordinates from localizer module to robots using client server model > Developed image processing algorithm for detection micro robots on the movement plane Python OpenCV ESP8266
January 2017 March 2017	Indoor Localization Inter IIT Technical Meet 2017, IIT Kanpur <ul style="list-style-type: none"> > Fabricated an Autonomous robot which can localize itself based on WiFi signals > Developed an algorithm to calculate robot movement parameters from WiFi Received Signal Strength > Gathered data using two Edimax WiFi modules through Unix commands running as root > 5th position at 5th Inter IIT Tech Meet Kanpur 2017 out of 18 participating teams from other IIT's Python Raspberry Pi
August 2015 March 2016	Chai Yo : Clean Energy Recharging the World Team Robocon IITR, IIT Roorkee <ul style="list-style-type: none"> > Delivered a manual robot and an autonomous robot fulfilling the problem statement of ABU Robocon 2016 > Designed multi-layered PCB's to support Arduino, Raspberry Pi and other robot systems > Developed autonomous navigation algorithms for control of robots using data from rotary encoders and distance sensors > Designed a voltage indicator circuit to prevent under-voltage of Li-Po batteries Eagle Embedded C Arduino Raspberry Pi
January 2016 March 2016	NAINA Models and Robotics Section, IIT Roorkee <ul style="list-style-type: none"> > Made a Virtual Reality application in which the user held a torch drawing in air with the path visualized on a phone > Implemented a Flask server which acted as an intermediate node for processing, storage and communication > Used Computer Vision algorithms to measure depth and position of torch through two cameras Python Flask
January 2015 March 2015	Self Balancing Robot Models and Robotics Section, IIT Roorkee <ul style="list-style-type: none"> > Fabricated and developed robot which balanced on two wheels > Gathered feedback from a 6-axis Inertial Measurement Unit comprising Accelerometer and Gyroscope > Implemented Kalman filters and PID control on Arduino Uno and processed output was sent to DC Motors Embedded C Arduino
January 2015 March 2015	Robominton : Badminton Playing Robots Team Robocon IITR, IIT Roorkee <ul style="list-style-type: none"> > Fabricated differential wheeled manual robot having pick, place and throw mechanisms as a learning project > Designed wireless serial uploader module via Bluetooth to upload algorithm code from PC to Arduino Embedded C Arduino

Minor Projects

- > **SuggestBot** | 24-hour hackathon project in Microsoft code.fun.do for students to recommend courses and books based on seniors feedback
- > **Parallelizing A* Search Algorithm for Heuristics Based Puzzle Solving** | Operating Systems mini-project enabling better understanding of multi-threading and multi-processing in Python and JAVA
- > **Activity Survey** | Built a timing based survey software for a Doctoral project which involved taking in decisive input from users and noting the timing of the response

Achievements

- > 1st Position out of 30 colleges in Robosapiens, Cognizance 2017
- > Best Aesthetic Robot in ABU Robocon 2016 India Leg
- > 2nd Position out of 45 colleges in Robosapiens, Cognizance 2015
- > Awarded the distinction of Dedicated Proficiency Holder for distinguished social service in NSS for the year 2014-2015
- > Recipient of Merit-cum-Means Scholarship for 4 consecutive years for outstanding academic achievement

⚡ Positions of Responsibility

- August 2017** | **Undergraduate Teaching Assistant, Dept. of Mathematics | IIT Roorkee**
Present
- › Taught a class of 85 undergraduate freshers Introductory Mathematics
 - › Helped the students in getting their doubts resolved
 - › Conducted special sessions before examinations for guidance
- July 2017** | **Overall Coordinator for Software Systems, Models and Robotics Section | IIT Roorkee**
Present
- › Responsible for mentoring the software design of each project idea displayed in Srishti 2018
 - › Spearheaded the overhaul of the organizational structure of the group
 - › Coordinated with the Departments and Centers of Excellence for Collaborative Projects encompassing their domain and robotics
- April 2016** | **Joint Secretary, Models and Robotics Section | IIT Roorkee**
May 2017
- › Responsible for maintaining a team of 133 proficiency holders of the section
 - › Ideating for project ideas in Srishti, the annual exhibition of the Hobbies Club held in the Spring semester every year
 - › Conducting and speaking on open lectures on robotics for all students in the campus
 - › Managed software systems at Team Robocon IIT Roorkee which represents the college at ABU Robocon
- April 2016** | **Web Development Head, IIT HeartBeat | IIT Roorkee**
May 2017
- › Responsible for the Web Activities of the magazine and managed a team of 15 members
 - › Rolled out the magazine website using Jekyll following a static site generation architecture
- Aug 2016** | **Mentor, Student Mentorship Programme | IIT Roorkee**
Present
- › Mentored a group of 7 freshers in AY 2016-2017; 6 freshers in AY 2017-2018
 - › Provided them guidance in terms of academics, extra-curricular's and life skills
- March 2016** | **Coordinator, Robosapiens, Cognizance | IIT Roorkee**
- › Organised the largest center-stage robotic event Robosapiens which was completed in 3 days with great success
 - › Brought in a participation of 54 teams comprising about 250 members and managing the event and teams successfully
- August 2014** | **Executive, National Service Scheme | IIT Roorkee**
May 2015
- › Involved in the Event Management and Promotions Cell where I managed and promoted the various activities of NSS
 - › Successfully organized 2 Blood Donation Camps where approx. 1000 units of blood was collected in each event
 - › Initiated Cloth and Newspaper Collection Drives 2 times in each semester

☰ Skills

- Programming Languages :** Python, C++, JavaScript(ES5, ES6), HTML, CSS, SQL, LaTeX
Databases : PostgreSQL, MySql, MongoDB
Web Services : Heroku, Amazon Web Services, Google Cloud Platform
Software Packages : Git, Vim, Docker, Fabric, Supervisor, nginx, Sentry, Flask, Arduino IDE, GNU/Linux, Eagle
Additional Courses : Udacity Mobile Web Specialist (Pursuing),

🗣 Languages

- English ● ● ● ● ●
Bengali ● ● ● ● ●
Hindi ● ● ● ● ●

👥 References

Dr. Sourav Das, Assistant Professor

- 📄 Dept. of Metallurgical and Materials Engineering
- 📄 Indian Institute of Technology, Roorkee
- 📧 souravfmt@iitr.ac.in

Dr. Ananth Krishnamoorthy, Founder and Director

- 📄 Data Science Team
- 📄 Rorodata Technologies, Hyderabad
- 📧 ananth@rorodata.com