Puneet Jain

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DOB: 02 August 1995, **Age:** 21 years
14-F, K Block, Saket, New Delhi, India, 110017

Education

Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi)	CGPA 9.15/10.0
Bachelors of Technology, Electronics and Communication	Department Rank: 1
Gyan Bharati School, Delhi	90.4%
Senior Secondary School	

Awards and Scholarships

- IIIT Delhi's **Dean's list** for Academic Excellence in the term 2015-16.
- Summer School for IoT organised by Microsoft Research, Bangalore and IISc Bangalore: **Hackathon 3rd position**
- IIIT Delhi Research Showcase 2015: **Hardware Hackathon Winner**
- Our team **won a 3D printer and a robotic arm** in Grey Orange Accelerated Learning (GOAL), Summer 2016
- **Winning team,** Analog Circuit Design competition, TI Analog Maker 2014 (Intracollege)
- Junior Science Talent Search Examination (**JSTSE**) **Scholar**, 2009-10

Publications

- Rohan Tiwari, **Puneet Jain**, Sujit Baliyarasimhuni, Sachit Butail and Michael Goodrich, "*Effect of Leader Placement on Robotic Swarm Control*", accepted as a full paper in the Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems (AAMAS2017) [*Acceptance Rate 26%*]

- Nipun Batra, Manoj Gulati, **Puneet Jain** , Kamin Whitehouse, and Amarjeet Singh, *"Bits and Watts: Improving energy disaggregation performance using power line communication modems"* , presented as short (poster) paper at the 1st ACM International Conference on Embedded Systems For Energy-Efficient Buildings (BuildSys' 2014), held in Memphis, USA on 5-6 November, 2014 (Also accepted for presentation in Microsoft Techvista'15) [pdf]

Research Projects

B.Tech Thesis: Frequency Response Analysis of Mosquito Swarming Behaviour
Built a laboratory microcosm at the National Institute of Malaria Research for studying mosquito swarming behaviour. Developed experimental setup for system identification of insect swarming over a marker. Performed frequency domain analysis of marker following behaviour using control-theoretic methods. [Won second prize in demo presentation at IIIT-Delhi Research Showcase.]   **Advisors:** Dr. Sachit Butail, Dr. P.B. Sujit

Low power device for Snow Petrel's nest in Antarctica
Device used for detecting temperature in the nests of Snow Petrels (birds found in Antarctica) and their foraging patterns, using Arduino Pro Mini board, temperature and light sensors and a 3D printed enclosure.

Audio localisation using ENF Signatures
Worked on using the ENF signatures embedded within audio recordings for forensic purpose, as part of Signal Processing Cup 2016. [Report]

Low cost WiFi Temperature sensor
Worked on the current hardware for ESP01 boards at Zenatix, for stabilising and running the WiFi based temperature sensor in AP and Client mode simultaneously.

Waypoint navigation for Autonomous Rickshaw
Steering and throttle control using PixHawk GPS and drive-by wire on an autonomous rickshaw to follow given waypoints. Extending to integrate LIDAR and vision for lane following and obstacle detection.

Ball tracking using quadcopter
Used a Parrot Drone with ROS to track a red ball using OpenCV, Kalman Filtering and PID Control.

Research Internships

Research & Development Intern, Zenatix   **Advisor:** Dr. Amarjeet Singh

Worked on hardware and firmware design of nRF (radio) based low power temperature sensing device.

Research Intern, EASeL Group, IIIT Delhi   **Advisor:** Dr. Sachit Butail

Worked on analysing the collective behaviour in pill bugs by processing data for varying density of Pill bugs moving in an annular region.

Research Intern, Energy Lab, IIIT Delhi

Worked with Doctoral students on approaches for Non Intrusive Load Monitoring, including Electromagnetic Interference from SMPS devices and data rate of PLC Modems.

Community Work

I taught Math, Science and Music to orphan girls aged 8 - 15 and Math and English to high school girls, associating with an NGO - Udayan Care.

Skills

Languages & Tools: MATLAB, Python, C, C++, ROS, EagleCAD, SPICE, Verilog, Cadence, SketchUp, 3D Printing
Hardware: Arduino, RaspberryPi, Intel Galileo, ESP WIFi boards, nRF (Nordic) radio

Positions Held

- Teaching Assistant
  - *Embedded Logic Design* in Monsoon 2015 semester
  - *Digital VLSI Design* for Monsoon 2016 semester
  - *Introduction to Robotics* for Winter 2017 semester
- **Mentor** for 10 undergraduate first year students during my senior year.
- **Member**, Student Senate — Student body associated with academics in the institute, 2015-16
- **Core organising committee**: Esya - Technical fest of IIIT Delhi, and Odyssey - Cultural fest of IIIT Delhi

Extra-Curricular Activities

I play basketball and keyboard and have represented my college and school for the same.