

# Pratyush Kar

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## CONTACT INFORMATION

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## EDUCATION

**BITS Pilani**, Rajasthan, India

**Aug, 2013 – Present**

B.E. (Hons.), Computer Science

- GPA (10 point): 9.31
- Major GPA: 9.81

**The Mother's International School**, New Delhi, India

**2001 – 2013**

Central Board of Secondary Education (CBSE)

- 10<sup>th</sup> GPA (10 point): 9.8
- 12<sup>th</sup> Percentage: 94.6%

## PROFESSIONAL EXPERIENCE

**Qualcomm India Pvt. Ltd.**, Hyderabad, India

**Summer, 2016**

*Software Engineering Intern*

Developed a parser and command sequencer (in C++ and Python) for running commands present in the log files to simulate a voice call in ADSP test framework on the Hexagon Simulator.

**Indian Institute of Remote Sensing (IIRS)**, Dehradun, India

**Summer, 2015**

*Summer Research Intern*

Developing a data mining plugin for QGIS (Dr. Sameer Saran)

- Designed an open source plugin (in Python) for QGIS to run data mining (like Decision Trees, AdaBoost, and Random Forest) algorithms on multi-band raster datasets.

Detecting Gradual Change in Noisy Time Series Data (Dr. Shefali Agarwal)

- Implemented algorithms for detecting intervals of gradual change in time series vegetation data using persistent delta approach (Chamber et. al).

## ACADEMIC PROJECTS

**Workload characterisation in cloud data centers** (Prof. Sundar B.)

**Fall, 2016 – Present**

*Undergraduate Thesis*

- Developed approaches based on user behavior modeling for the prediction of future workloads on the Google cluster dataset.
- Implemented models based on Support Vector Regression (SVR) for prediction of future CPU and memory usage.

**Autonomous humanoid robot: AcYut** (Prof. B.K. Rout)

**Oct, 2013 – Present**

- Developed a fully autonomous soccer-playing humanoid robot funded by Dept. of Electronics and Information Technology (DeitY, Govt. of India).
- Implemented algorithms based on Monte Carlo Localization (MCL) for efficient localization using field line detection.
- Designed the behavior control framework of AcYut 7 (using Extensible Agent Behavior Specification Language, XABSL).
- Participated and stood 6<sup>th</sup> in RoboCup 2015 (only team from India) held in Hefei, China.
- Demonstrated AcYut at India-HU workshop for Sensing and Robotics (HiSENS 2015).

	<p><b>Content based image retrieval for Shekhawati paintings</b> (Prof. Sundar B.) <b>Spring, 2016</b></p> <ul style="list-style-type: none"> <li>• Implemented graph-based image segmentation algorithms for identifying important objects in the paintings.</li> <li>• Designed image classification algorithms using HOG features and SVM for automatic annotation of the input images.</li> </ul> <p><b>Hand gesture recognition</b> (Prof. Navneet Goyal) <b>Fall, 2015</b></p> <ul style="list-style-type: none"> <li>• Implemented classification of multivariate time series gesture data using two-dimensional singular value decomposition (2d-SVD) (Weng et. al).</li> <li>• Implemented a real-time hand gesture recognition software using the webcam in MATLAB.</li> </ul> <p><b>Multi-robot exploration using TurtleBots</b> (Prof. Sudeep Mohan) <b>Jan – Dec, 2015</b></p> <ul style="list-style-type: none"> <li>• Designed planning and task allocation algorithms based on Constrained Delaunay Triangulation and tested them on the TurtleBot platform (in ROS).</li> </ul>
PUBLICATIONS	<p><b>Pratyush Kar</b>, Archit Jain, B.K. Rout. <a href="#">Effective localization of humanoid with fish-eye lens using field line detection</a>. IEEE Asia-Pacific Conference on Intelligent Robot Systems (ACIRS 2016) held in Tokyo, Japan.</p> <p>Kaustubh Nawade, V. Aditya, <b>Pratyush Kar</b>, Anirudh Bhutani, Nishant Bansal, Anant Anurag, Shreyas P. Dixit. <a href="#">Autonomous humanoid robot AcYut</a>. Extended abstract accepted at the Developing Countries Forum of the IEEE International Conference on Robotics and Automation (ICRA 2015) held in Seattle, USA.</p> <p>B.K. Rout, Kaustubh Nawade, V. Aditya, <b>Pratyush Kar</b>, Anirudh Bhutani. <a href="#">Team AcYut – Team Description Paper 2015</a>. RoboCup 2015 Symposium held in Hefei, China.</p> <p><b>Pratyush Kar</b>, Sameer Saran. <a href="#">SpatialDM: An open source data mining plugin for QGIS</a>. Journal of Geomatics, Vol. 9 No. 2, pp. 141-145, 2015.</p>
TEACHING EXPERIENCE	<p><b>BITS Pilani</b>, Rajasthan, India</p> <p><i>Teaching Assistant</i> <b>Spring, 2016</b></p> <p>Co-taught an undergraduate course to over 200 students. Shared responsibility for labs, programming assignments, and grades.</p> <ul style="list-style-type: none"> <li>• CS F211 Data Structures and Algorithms</li> </ul>
HONORS AND AWARDS	<p>Awarded merit scholarship by BITS Pilani, for exceptional academic performance.</p> <p>Recipient of Kishore Vaigyanik Protsahan Yojana (KVPY) scholarship, awarded by the Department of Science and Technology (Govt. of India), 2013.</p>
COMPUTER SKILLS	<ul style="list-style-type: none"> <li>• Softwares: MATLAB, IBM SPSS Modeler, Oracle SQL Developer, Git</li> <li>• Languages: C, C++, Python, Java, SQL, Prolog, <math>\text{\LaTeX}</math></li> <li>• Libraries: OpenCV, LibSVM, cvBlob, XABSL, QT</li> <li>• Operating Systems: Unix/Linux, macOS, Windows</li> </ul>
EXTRA CURRICULARS	<p><b>Photography</b></p> <ul style="list-style-type: none"> <li>• Completed a diploma course on DSLR photography under Mr. Nitin Rai.</li> </ul>
LANGUAGES	<p>English (fluent), Hindi (native).</p>