Pratyush Kar

Contact Information

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Education

BITS Pilani, 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^{th} GPA (10 point): 9.8
- 12^{th} Percentage: 94.6%

Professional Experience

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

Summer Research Intern **22 May – 16 July, 2015**

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).

Qualcomm India Pvt. Ltd., Hyderabad, India

Software Engineering Intern **23 May – 15 July, 2016**

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.

Academic Projects

Content based image retrieval for Shekhawati paintings (Prof. Sundar B.) **Spring, 2016**

- Implemented graph-based image segmentation algorithms for identifying important objects in the paintings.
- Designed image classification algorithms using HOG features and SVM for automatic annotation of the input images.

Hand gesture recognition (Prof. Navneet Goyal) **Fall, 2015**

- Implemented classification of multivariate time series gesture data using two-dimensional singular value decomposition (2d-SVD) (Weng et. al).
- Implemented a real-time hand gesture recognition software using the webcam in MATLAB.

Face expression recognition using Kinect (Microsoft CodeFunDo) **Spring, 2016**

- Used Face Tracking SDK to detect the head pose and identify the face features.
- Used multi-class SVM to create a model to classify the real-time face feature data.

Multi-robot exploration using TurtleBots (Prof. Sudeept Mohan) **Jan – Dec, 2015**

- Designed planning and task allocation algorithms based on Constrained Delaunay Triangulation and tested them on the TurtleBot platform (in ROS).

Autonomous humanoid robot: AcYut (Prof. B.K. Rout) **Oct, 2013 – May, 2016**

- 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 5^{th} in RoboCup 2015 (only team from India) held in Hefei, China.
- Demonstrated AcYut at India-HU workshop for Sensing and Robotics (HiSENS 2015).

Publications

Pratyush Kar, Archit Jain, B.K. Rout. Effective localization of humanoid with fish-eye lens using field line detection. IEEE Asia-Pacific Conference on Intelligent Robot Systems (ACIRS 2016) held in Tokyo, Japan.

Kaustubh Nawade, V. Aditya, **Pratyush Kar**, Anirudh Bhutani, Nishant Bansal, Anant Anurag, Shreyas P. Dixit. Autonomous humanoid robot AcYut. Extended abstract accepted at the Developing Countries Forum of the IEEE International Conference on Robotics and Automation (ICRA 2015) held in Seattle, USA.

B.K. Rout, Kaustubh Nawade, V. Aditya, **Pratyush Kar**, Anirudh Bhutani. Team AcYut – Team Description Paper 2015. RoboCup 2015 Symposium held in Hefei, China.

Pratyush Kar, Sameer Saran. SpatialDM: An open source data mining plugin for QGIS. Journal of Geomatics, Vol. 9 No. 2, pp. 141-145, 2015.

Teaching Experience

BITS Pilani, Pilani, Rajasthan, India

Teaching Assistant **Spring, 2016**

Co-taught an undergraduate course to over 200 students. Shared responsibility for labs, programming assignments, and grades.

- CS F211 Data Structures and Algorithms

Honors and Awards

Awarded merit scholarship by BITS Pilani, for exceptional academic performance.

Recipient of Kishore Vaigyanik Protsahan Yojana (KVPY) scholarship, awarded by the Department of Science and Technology (Govt. of India), 2013.

Computer Skills

- Softwares: MATLAB, IBM SPSS Modeler, Oracle SQL Developer, Git
- Languages: C, C++, Python, Java, SQL, Prolog, LaTeX
- Libraries: XABSL, OpenCV, QT, cvBlob, LibSVM
- Operating Systems: Unix/Linux, Mac OS, Windows

Extra Curriculars

Photography

- Completed a diploma course on DSLR photography under Mr. Nitin Rai.

Languages

English, Hindi (native).