BIKRAMJOT SINGH HANZRA

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EDUCATION

- Master of Science - Robotic Systems Development (MRSD), Robotics Institute, School of Computer Science, Carnegie Mellon University, Pittsburgh, USA (2015 - present)
- Bachelor of Engineering - Electronics and Communication Engineering, Dept. of ECE, PEC University of Technology, Chandigarh, India (2010 - 2014)

WORK EXPERIENCE/ TRAININGS

- *Research Intern*, IRSEEM, ESIGELEC, France (February 2013 - July 2013)
  I worked on a computer vision project titled *"Automatic Cameraman for Dynamic Video Acquisition of Football Match"* under the guidance of Dr. Romain Rossi, IRSEEM, ESIGELEC.
- *Summer Research Intern*, IIT Madras, India (June 2012 - July 2012)
  I worked on a R&D project titled *"Understanding Freescale DPAA"* under the guidance of Dr. V Kamakoti, CS Dept., IIT Madras.
- *Trainee*, Vibe Tech Solutions Pvt. Ltd., India (June 2011 - July 2011)
  I successfully completed industry endorsed course in Embedded Design and Robotics.

PROJECTS

Computer Vision and Machine Learning Projects

- `Object Detector Framework written in Python using OpenCV and sklearn`
- `Object Tracking using Dlib and OpenCV`
- `Image Recognition using Bag of Words approach`
- `Face Recognition using OpenCV`
- `Handwritten Digit Recognition`
- `Texture Matching using Local Binary Patterns (LBP)`

The source code of all the above projects is available at `github.com/bikz05`.

Object Transportation Task by a Mobile Robot following a Human (2014)

The aim of this project was to build a robot which could track and follow the path of a human using Microsoft Kinect and carry a load from source to destination by using a gripping mechanism.

- Awarded **2**nd **prize** in PEC Open House 2014 from amongst all departments.
- Project poster was presented at **Intel Asia Innovation Summit 2014**.

Automatic Cameraman for Dynamic Video Acquisition of Football Match (2013)

A system was designed for dynamic video acquisition of football match. Raw frames from static cameras were processed to track the position of players in the field. The tracking data was then used to control an array of Pan Tilt Zoom (PTZ) cameras.

- Research Paper published in *2013 IEEE Second International Conference on Image Information Processing*.
- **Awarded Best Paper Award**

Understanding Freescale DPAA (2012)

The project aimed to develop an optimized Linux kernel with reduced size and faster booting to compare its performance with that of Freescale DPAA for packet forwarding. This project was funded by Freescale Semiconductors.

Real Time Vehicle License Plate Detection (2012)

This project involved detection of car number plate using MATLAB and LabView. After detection of number plate, the number was extracted using OCR and the number was compared with a database and if there was a match, a boom barrier was lifted and an email was sent to the owner as payment receipt.

Natural Interaction with Computers (2013)

The aim of this project was to build a system using which the user could interact with computers using gestures and speech. An application to control a powerpoint presentation with gestures was developed. Speech based commands were also used to interact with the computer.

ACHIEVEMENTS

- I was awarded **Silver Medal** for the best major project in my branch.
- I was awarded **Institute Color**, the highest honour for a student in PEC.
- I was awarded **Certificate of Appreciation** in 2012 and **Certificate of Recommendation** in 2013 by PEC.
- I won **1**st **prize** in Image Processing event *"Ocean's Fourteen"* at IIT Kanpur Technical Fest in 2012.
- I won **1**st **prize** in Image Processing event *"I-Strike"* at BITS Pilani Technical Fest in 2012.
- I won **2**nd **prize** in Industrial Image Processing event *"Packman"* at IIT Chennai Technical Fest in 2011.

SKILLS

Programming skills	C++, C, Python, Java, Mathworks Matlab/GNU Octave, NI LabView, HTML, CSS, JavaScript, Shell Scripting.
Open Source Libraries	OpenCV, OpenNI, numpy, scipy, matplotlib.
Other Useful Tools	ROS, Gazebo, NiTE, vim, git. Code::Blocks, LaTeX.
Operating System(s)	Ubuntu , Microsoft Windows.
Hardware Skills	8051, AVR (Atmega series), PIC, Arduino, 8085/86, MS Kinect, PTZ Cameras.

CO-CURRICULAR ACTIVITIES

- I have served as a National Social Service (NSS) Volunteer during my undergraduate years. I organized a number of blood donation drives, cleanliness drives and attended many NSS camps.
- I was a member of the college robotics team and served as the **General Secretary** of Robotics Society during the academic year 2014. I organized many workshops, expert lectures and competitions at PEC where students from other colleges participated.
- I served as Student Coordinator at *PEC Open House 2012* where students from nearby schools visit PEC and are demonstrated the research projects begin done at PEC.
- I won first prize in *"Bingo"* and *"Chance2Cheat"* at PEC Technical Fest 2011 *"Vyom"*.
- I represented my school at Under-16 U.T. level cricket tournament and also participated in annual college sports meet.

REFERENCES

Dr. John M. Dolan	Principal Systems Scientist	RI, CMU, USA	jdolan@andrew.cmu.edu
Dr. Romain Rossi	Researcher-Faculty	IRSEEM, France	romain.rossi@esigelec.fr
Dr. Sukhwinder Singh	Assistant Professor	PEC Uni. of Tech., India	sukhwindersingh@pec.ac.in

TEST SCORES

- GRE - Total - 326, Q (168/170), V (158/170), AWA (3.5/6).
- TOEFL Total 110, R (28/30), L (30/30), S(24/30), W(28/30).
- AIEEE - All India Rank 3384 (Top .3 Percent)

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