Praveen Palanisamy

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SUMMARY:

A budding Robotic systems engineer having hands-on working and debugging skills and a strong desire to excel fueled by passion.

EDUCATION:

- **Carnegie Mellon University** — **Pittsburgh, USA**
  Master of Science in Robotics System Development — Aug 2014 to Dec 2015
- **Vellore Institute of Technology** — **Chennai, India**
  Bachelor of Technology in Electrical and Electronics Engineering — Jul 2010 to May 2014
  CGPA: 8.76/10

WORK EXPERIENCE:

- **Research assistant, Carnegie Mellon University** — **Pittsburgh, USA**
  Aug 2014 – Present
  - Worked on I-Robot Roomba's vision system, Face recognition and endoscopy interfacing & video processing.
- **Computer Vision Engineer, Cladoop Inc** — **Delaware, USA**
  Mar 2014 – Aug 2014
  - Played a key-role in developing a variety of solutions crucial for the start-up's flag-ship products.
  - Developed a real-time facial landmark detection + tracking system.
  - Developed an application for 3D face reconstruction from a single 2D frontal face image.
  - Developed a face pre-processing application for illumination invariant multi-view face recognition.
- **Research Intern, Deakin University** — **Geelong, Australia**
  Feb 2014 to Jun 2014
  - Worked on smart mircogrids under the guidance of Dr. Aman Than Oo.
  - Implemented a Hybrid Renewable Energy Source-fed Smart, web-enable Microgrid.
- **Summer Intern, Nagravision-Kudelski group** — **Bangalore, India**
  May 2012 to Jun 2012
  - Developed a cross platform GUI based build tool for different embedded targets: Broadcom and ST based STBs.
  - Helped in simplifying the process of building OpenTV middle-ware on the different hardware targets for testing and debugging.

SKILLS:

- **Programming: Intermediate:** C, C++, Python, Matlab, MySQL; **Basic:** Labview, VHDL, PHP, js, CSS.
- **Hardware:** Pandaboard ES (OMAP4 SoC), Cubieboard (Allwinner A10), LM3S1958 (Cortex M3), Arduino, AVR ATMega (8, 16,168,328), Zigbee (Xbee S2).
- **Libraries & frameworks:** OpenCV, ROS, Qt, OpenGL, V4L2, HTK.
- **Software & OS:** Matlab & Simulink, PSpice, Labview, Solidworks, Eagle CAD; **OS:** Linux/embedded linux, Windows.

PUBLICATIONS:

- **P. Praveen**, "Universal Device Controller (UDC)", International Journal of Computer Applications, Volume 82, No.10, p24-29, November 2013.

- **P. Praveen**, "Efficient way of Path Planning for Autonomous Multi-Robot System using Intelligent Vision System", 8th IEEE International Conference on Industrial and Information Systems, Peradeniya, Srilanka, Dec, 2013.
- **P. Praveen**, R. Manoj,"Steganography Framework for Easy Secret Sharing Through Images", 2nd IEEE International Conference on Image Information Processing (ICIIP), Shimla, India, Dec, 2013.
- **P. Praveen**, "MORTAL: Multiple Object Real-time Tracking And Learning", International Journal of Imaging and Robotics, 2014 (in press).
- M. Sakshi, **P. Praveen**, S. Hemamalini "Efficient Power Flow Management and Peak Shaving in a Microgrid-PV System, International Conference on Renewable Energy and Sustainable Development (ICRESD), Jan, 2014.

PROJECTS:

- Robot BUD-E: A home Butler Uniquely Designed for the Elderly (Work in progress)
  - Served as the technical lead and developed a physical architecture for BUD-E, a complex robot with adjustable torso, 6 DoF manipulator arm and stair climbing capability.
  - Developed the electrical hardware design, set-up the computing hardware and played a crucial role in developing the software for the robot.
- JARVIS: Robot vision & speech system that can understand continuous speech and respond:
  - Developed the vision system which can track any known or unknown objects and learn them while keeping a record of all the learnt objects.
  - Developed the speech system comprising of a recognizer and a synthesizer which enables the bot to hear and respond.
- Multiple Object Real-time Tracking and Learning (MORTAL)
  - Used Computer vision and machine learning algorithms to develop a robust multiple object tracking system.
  - Ported the application to run on multiple threads and optimized the code for speed.
- Multi-touch surface using blob tracking
- Biometric Face tracker
- Facial Landmarks tracking
- 3D face reconstruction from single 2D frontal face image
- Robust pre-processing for illumination invariant face recognition
- OmniBot—A robot platform
- Wirelessly controlled (using PS2 joystick) wheeled robot
- A speech controlled Omni-directional wheel chair robot.
- Real-time face tracking on Linux
- Ironman's Arc Reactor (model)
- Wireless Induction charger
- Robudplayer

PROFESSIONAL ACTIVITIES:

- Book reviewer for the book: "Getting Started with Cubieboard"; Publisher: Packt publishing.
- Designated paper Reviewer for IJCDS, WSCAR 2014 and ICCVIA 2014.
- Member of Technical Program Committee (TPC) of the IEEE Conference, ICCVIA 2014.
- Obtained 96% in the online course on "Image and Video processing" instructed by Guillermo Sapiro, Duke University.
- Instructed a course on "Introduction to Microcontrollers" as part of the peer learning initiative by the IEEE student chapter of VIT University.