ATHUL VIJAYAN - PR Number: 22/ED/16/004
ED11B004, Department Of Engineering Design, IIT Madras

EDUCATION

Course/ Examination	Institute	Year	CGPA / %
5th Year Dual Degree in Dept. of Engineering Design	IIT Madras	2011-present	6.95
All India Senior School Certificate Examination (AISSCE)	JNV Idukki, Kerala	2009	92
Central Board of Secondary Education (CBSE)	JNV Idukki, Kerala	2007	91

PROFESSIONAL EXPERIENCE AND IP

- **6 Months internship at National Instruments, Bangalore**: Research towards 5th Generation wireless communication.
  - **Zero Down Time Cognitive Radio**: A novel improvement to the classical concept of cognitive radio is formulated and implemented in RF hardware.
  - Developed a modular implementation of point to point wireless communication using **Software Defined Radio (SDR)** and LabVIEW. Published a **white paper** - a well organized tutorial on wireless communication.
- **2 Months internship at Wiitronics**- A startup in IIT Madras Research park working on Internet of Things solutions.
  - Worked on a smart car parking solution. Developed mesh networked sensors to detect the presence of car and alert the cloud server.
- Designed improved drying mechanism for washing machines using super-absorbent polymers.
  - Filed for **provisional patent through IC&SR, IIT Madras** under **Patent ID: 146/CHE/2015**.

PROJECTS

- Final year project in **Pattern recognition models** under **Prof. Hema A Murthy, CSE IITM** in collaboration with **Sur's Lab of Neuroscience, MIT**.
  - Develops Statistical models for **Big Data sets** from various experiments in Neuroscience conducted in **Mriganka Sur's lab, MIT**.
- **Smart Library Management Project** under *IC&SR Student innovation project*: An Internet of things project aimed at connecting each books in a library to internet.
- **Driver sleep alert system using EEG and head movements**: A novel wearable technology which reads the brain activity as EEG signals and head movements of driver to estimate fatigue level.
  - Used Bluetooth to send the sensor data to a computing device like smart phone for utilizing its computation potential.
- **Projects in Machine Learning**: Handwriting recognition of Telugu characters, Speaker Identification, Spoken digit recognition. Used **GMMs, HMMs, SVM and Deep learning (CNN)** etc.
- **Image classification**: Developed brain inspired algorithm for image classification.

CO-CURRICULAR ACTIVITIES

- Member of the team represented IIT Madras for **ABU Robocon 2013** - An International robotics competition.
  - Team IIT Madras was awarded '**Fastest Job Completing Robot**' in the national level for the event.
- Attended **National Communications Conference 2015, IIT Bombay**.
- Created a **Content Management Website for blogging and data sharing** under `www.candyflip.in` . The blog topics include statistical analysis and Embedded systems.
- Participated in **Texas Instruments India Analog Design Contest 2014** with two other team members.
- Developed circuits and PCBs for teaching purposes with Prof.Natarajan (Dept.of Physics, IIT Madras).

SKILLS

- **Programming**: C/ C++, Python, MATLAB, R, LabVIEW, MySQL, HTML, CSS, Django Web Framework, LaTeX.
- **Electrical**: Embedded Systems - PCB Design in Cadsoft Eagle, Arduino, PIC, AVR, Raspberry Pi, Various sensors and wireless protocols.
- **Designing and Modelling**: Adobe Photoshop, Adobe Illustrator, Autodesk Inventor.

RELEVANT COURSES

- **Core**: Analog and Digital circuits, Application of Microprocessors, Mechatronics, Multivariate data analysis, Pattern Recognition, Applied Time Series, Mathematical Statistics, Process Optimization, Speech Technology, Algorithms and Data Structures, Digital Image processing.

- **Product Design**: Functional and Conceptual Design, Human Factors in Design, Design for X, Product Design Lab.

POSITIONS OF RESPONSIBILITY

- **Graphic Design Coordinator** for Shaastra 2013, annual technical festival of IIT Madras.
- **Technical Affairs secretary** of Ganga Hostel during 2013-2014: Ganga placed second in manual robotics and third in autonomous robotics in intra-hostel technical competitions under my leadership.