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

EDUCATION

Course/ Examination	Institute	Year	CGPA / %
5^{th} 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

FIELDS OF INTEREST

- Machine Learning and Statistics, Algorithms and Programming, Web development, Product Design, Internet of Things.

RELEVANT COURSES

- **Statistical analysis**: Multivariate data analysis, Pattern Recognition, Applied Time Series, Mathematical Statistics.
- **Computer Science**: Algorithms and Data Structures, Speech Technology, Computational Neuroscience, Digital Image processing, Process Optimization.

PROJECTS

- Final year project on **Pattern recognition models** under **Prof. Hema A Murthy, CSE IITM** in collaboration with **Sur's Lab of Neuroscience, MIT**.
  - Develops Statistical models for data from various experiments in Neuroscience conducted in **Mriganka Sur's lab, MIT**.
  - Formulates and implements efficient statistical models for **Big Data sets**.
- **Handwriting recognition of Telugu characters**: Used Gaussian Mixture Models (GMM)and Hidden Markov Models (HMM) for online Handwriting recognition and compared the results.
- **Speaker Identification**: Used HMMs to form sequential models for speaker identification.
- **Spoken digit recognition**: Used HMMs for individual digit recognition from utterances.
- **Image classification**: Developed brain inspired algorithm for image classification.
  - Formulated and implemented a **brain inspired cascading algorithm** for image classification.
  - Performance of various feature extraction methods are compared using **GMMs, HMMs, SVM and Deep learning (CNN)**.
- **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.
- **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. With this system we can locate every book in a library instantly.

PROFESSIONAL EXPERIENCE AND IP

- **6 Months internship at National Instruments, Bangalore**: Research towards 5th Generation wireless.
- **Internship at Wiitronics for 2 months**- A startup in **IIT Madras Research park** working on Internet of Things solutions.
- Designed improved drying mechanism for washing machines. Filed for **provisional patent through IC&SR, IIT Madras** under **Patent ID: 146/CHE/2015**.

SKILLS

- **Programming**: C/ C++, Python, MATLAB, R, LabVIEW, MySQL, HTML, CSS, Django Web Framework, LaTeX.
- **Product design**: Adobe Photoshop, Autodesk Inventor, Embedded electronics, PCB design.

CO-CURRICULAR ACTIVITIES

- Created a **Content Management Website for blogging and data sharing** under `www.candyflip.in`. The blog topics include statistical analysis and Embedded systems.
- Attended **National Communications Conference 2015, IIT Bombay**.
- Member of the team represented IIT Madras for **ABU Robocon 2013** - An International robotics competition.
- Participated in **Texas Instruments India Analog Design Contest 2014** with two other team members.

POSITIONS OF RESPONSIBILITY

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